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(FILE 'HOME' ENTERED AT 13:17:40 ON 12 AUG 2002)
SET COST OFF

FILE 'REGISTRY' ENTERED AT 13:18:02 ON 12 AUG 2002

L1 1 S GLYCEROL/CN
L2 6 S (METHANOL OR ETHANOL OR 1-PROPANOL OR 2-PROPANOL OR BUTANOL) /
L3 9 S 62309-51-7 OR 35296-72-1 OR 71-36-3 OR 211181-05-4 OR 14898-7
L4 13 S L2,L3

FILE 'HCAPLUS' ENTERED AT 13:21:25 ON 12 AUG 2002

E COGNIS/PA,CS
L5 683 S E3-E97
E BONAKDAR M/AU
L6 10 S E3-E5
E WOLLMANN G/AU
L7 35 S E3-E5
E GUTSCHE B/AU
L8 116 S E3,E4,E6,E7
E GUETSCHE B/AU
E SCHWARZER J/AU
L9 16 S E3,E4,E6
L10 815 S L5-L9
L11 28578 S STEROL
E STEROL/CT
E E17+ALL
L12 12773 S E7
L13 3261 S E6
L14 26 S L10 AND L11-L13
L15 43190 S STEROID?/SC, SX
L16 8 S L10 AND L15
L17 26 S L14,L16
L18 171304 S ?STEROL?
L19 26 S L10 AND L18
L20 26 S L17,L19
SEL DN AN 3 5 6 17 18 22-26
L21 10 S L20 AND E1-E30
L22 209842 S L11-L13,L15,L18
L23 4 S L21 AND TRANSESTER?
E TRANSESTER/CT
E E4+ALL
L24 94 S L22 AND E5+NT
L25 18 S L22 AND E12+NT
L26 1 S L22 AND E13+NT
L27 106 S L24-L26
L28 3 S L27 AND TALL(L)OIL
L29 83859 S (TALL OR SOYBEAN OR SOY# BEAN OR GLYCINE MAX OR SUNFLOWER OR
L30 4985 S L29 AND L22
L31 31 S L30 AND L27
L32 31 S L28,L31
L33 64 S L30 AND TRANSESTER?
L34 64 S L32,L33
L35 71 S L21,L23,L34
L36 11 S L35 AND (L1 OR GLYCERIN? OR GLYCEROL?)
L37 9 S L35 AND L4
L38 17 S L35 AND (MEOH OR ETOH OR PROH OR IPROH OR METHANOL OR ETHANOL
L39 20 S L35 AND DISTILL?
L40 32 S L36-L39
L41 37 S L35,L40 AND P/DT
L42 28 S L41 AND FATTY ACID
L43 9 S L41 NOT L42
SEL DN AN 3 4 8 9

L44 4 S L43 AND E1-E12
 L45 32 S L42,L44

FILE 'HCAPLUS' ENTERED AT 13:40:47 ON 12 AUG 2002
 L46 32 S L45 AND L5-L45

=> fil hcaplus

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 FILE LAST UPDATED: 11 Aug 2002 (20020811/ED)

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=> d l46 all hitstr tot

L46 ANSWER 1 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:457514 HCAPLUS

DN 137:19761

TI Oil-in-water emulsions containing **sterols** and enzyme-treated egg yolk, and their manufacture

IN Kawade, Satoru; Okutomi, Yasuo

PA Asahi Denka Kogyo K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT **Patent**

LA Japanese

IC ICM A23L001-24

ICS A23D007-00; A23L001-30

CC 17-9 (Food and Feed Chemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002171931	A2	20020618	JP 2000-369929	20001205
AB	The emulsions, useful for mayonnaise, dressing, etc., contain phytosterols and/or their fatty acid esters and enzyme-treated egg yolk. The emulsions show good stability, flavor, and texture.				
ST	emulsion phytosterol egg yolk enzyme treatment; sterol emulsion egg yolk mayonnaise dressing				
IT	Condiments (dressings; oil-in-water emulsions contg. sterols and enzyme-treated egg yolk)				

- IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (esters, with **phytosterols**; oil-in-water emulsions contg.
sterols and enzyme-treated egg yolk)
- IT Egg yolk
 Food emulsions
 Mayonnaise
 (oil-in-water emulsions contg. **sterols** and enzyme-treated egg
 yolk)
- IT **Sterols**
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (oil-in-water emulsions contg. **sterols** and enzyme-treated egg
 yolk)
- IT **Palm oil**
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (oleins, **transesterification** products with
phytosterol; oil-in-water emulsions contg.
sterols and enzyme-treated egg yolk)
- IT **Rape oil**
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (**transesterification** products with **phytosterol**;
 oil-in-water emulsions contg. **sterols** and
 enzyme-treated egg yolk)
- IT 111-62-6DP, Ethyl oleate, **transesterification** products with
phytosterol and **rape oil**
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (oil-in-water emulsions contg. **sterols** and
 enzyme-treated egg yolk)
- IT 9001-00-7, Bromelain 9001-84-7, Phospholipase A 9001-92-7, Protease
 9043-29-2, Phospholipase A1
 RL: FFD (Food or feed use); NUU (Other use, unclassified); BIOL
 (Biological study); USES (Uses)
 (oil-in-water emulsions contg. **sterols** and enzyme-treated egg
 yolk)

L46 ANSWER 2 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:391314 HCAPLUS

DN 136:385048

TI Enzymatic procedure for the production of **fatty acid**
sterol esters from fat refining **distillates** and
tall oil

IN Weber, Nikolaus; Kumar, D.

PA Germany

SO Ger. Offen., 10 pp.

CODEN: GWXXBX

DT **Patent**

LA German

IC ICM C12P033-00

CC 16-2 (Fermentation and Bioindustrial Chemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10119972	A1	20020523	DE 2001-10119972	20010424
AB	An enzymic process is provided for synthesis of fatty acid sterol esters by transesterification of oil distillates , tall oil or plant oils with com. available lipases. The resulting fatty acid sterol esters are neutralized, and sepd. by solvent fractionation and liq. chromatog. The recovered fatty acid sterol esters can then find use in foods,				

- pharmaceuticals or cosmetics.
- ST lipase **transesterification fatty acid sterol ester**
- IT Liquid chromatography
(adsorption; enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT **Transesterification**
(biol.; **enzymic** procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT Enzymes, uses
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(com.; enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT Fats and Glyceridic **oils**, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(**distillates** of; enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT Extraction
Neutralization
(enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT **Fatty acids**, reactions
Glycerides, reactions
Rape oil
Soybean oil
Tall oil
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT Carboxylic acids, preparation
RL: BYP (Byproduct); PREP (Preparation)
(enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT **Fatty acids**, preparation
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(esters, with **phytosterols**; enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT **Sterols**
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(esters; enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT Enzymes, uses
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(immobilized; enzymic procedure for prodn. of **fatty acid sterol esters** from fat refining **distillates and tall oil**)
- IT Fractionation
(solvent; enzymic procedure for prodn. of **fatty acid**

sterol esters from fat refining distillates and tall oil)

IT **Sterols**
 RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study);
 PROC (Process); RACT (Reactant or reagent)
 (soya; enzymic procedure for prodn. of **fatty acid**
 sterol esters from fat refining distillates and tall oil)

IT 9001-62-1, Lipase
 RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
 (enzymic procedure for prodn. of **fatty acid**
 sterol esters from fat refining distillates and tall oil)

IT 57-10-3, Palmitic acid, reactions 57-11-4, Stearic acid, reactions 57-88-5, **Cholesterol**, reactions 60-33-3, LinOleic acid, reactions 83-45-4, Sitostanol 83-46-5 83-48-7, **Stigmasterol** 112-80-1, Oleic acid, reactions 474-62-4, **Campesterol**
 RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study);
 PROC (Process); RACT (Reactant or reagent)
 (enzymic procedure for prodn. of **fatty acid**
 sterol esters from fat refining distillates and tall oil)

IT 1989-52-2P 3712-16-1P 31615-93-7P, Stigmasteryl oleate 64144-49-6P, Campesteryl oleate 108514-64-3P, Sitostanyl linoleate 108515-19-1P, Sitostanyl oleate
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
 (enzymic procedure for prodn. of **fatty acid**
 sterol esters from fat refining distillates and tall oil)

IT 122-32-7P, Triolein
 RL: BYP (Byproduct); PREP (Preparation)
 (enzymic procedure for prodn. of **fatty acid**
 sterol esters from fat refining distillates and tall oil)

L46 ANSWER 3 OF 32 HCAPLUS COPYRIGHT 2002 ACS
 AN 2002:122987 HCAPLUS
 DN 136:150242
 TI Method for obtaining or recovering **sterols** and tocopherols
 IN Albiez, Wolfgang; Kozak, William G.; Louwen, Thorsten
 PA **Cognis Deutschland GmbH, Germany**
 SO PCT Int. Appl., 14 pp.
 CODEN: PIXXD2
 DT **Patent**
 LA German
 IC ICM C07D311-72
 CC 17-2 (Food and Feed Chemistry)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002012222	A1	20020214	WO 2001-EP8877	20010801
	W: BR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	DE 10038457	A1	20020221	DE 2000-10038457	20000807
PRAI	DE 2000-10038457	A	20000807		
AB	The invention relates to a method for isolating sterols and tocopherols from mixts. of fats and fat derivs. and from residual products from processing the same. After the splitting of the glycerides by hydrolysis and the subsequent sepn. of the free fatty acids by distn. , most of the remaining sterol				

esters are split into free **sterols** by addnl. hydrolysis.

ST **sterol** tocopherol recovery fat glyceride processing

IT **Sterols**

RL: RCT (Reactant); RACT (Reactant or reagent)

(esters; method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Distillation**

Food processing

Hydrolysis

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT Fats and Glyceridic oils, biological studies

RL: BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT Glycerides, biological studies

RL: BSU (Biological study, unclassified); FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Coconut oil**

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT Corn oil

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT Cottonseed oil

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Palm kernel oil**

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Palm oil**

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Rape oil**

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Soybean oil**

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)

(method for obtaining or recovering **sterols** and tocopherols

from fats and fat derivs. and their processing products)

IT **Sunflower oil**
 RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)
 (method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Sterols**
 Tocopherols
 RL: PUR (Purification or recovery); PREP (Preparation)
 (method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

IT **Fatty acids, processes**
 RL: REM (Removal or disposal); PROC (Process)
 (method for obtaining or recovering **sterols** and tocopherols from fats and fat derivs. and their processing products)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Anon; ULLMANN'S ENCYCLOPEDIA OF INDUSTRIAL CHEMISTRY 1996, VA27, P478
- (2) Gutsch; WO 9405650 A 1994 HCAPLUS
- (3) Henkel Corp; WO 9721697 A 1997 HCAPLUS
- (4) Henkel Kgaa; DE 19652522 A 1998 HCAPLUS
- (5) Hoffmann La Roche; EP 0610742 A 1994 HCAPLUS
- (6) Julian, D; US 3840570 A 1974 HCAPLUS
- (7) Nisshin Oil Mills Ltd; DE 3126110 A 1982 HCAPLUS
- (8) Smith, F; US 3335154 A 1967 HCAPLUS

L46 ANSWER 4 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:119296 HCAPLUS

DN 136:167561

TI Process for the isolation of **sterols** from the residues of **fatty-acid** or methyl-ester production

IN Schwarzer, Joerg; Gutsche, Bernhard; Wollmann, Gerhard

PA Cognis Deutschland GmbH, Germany

SO Eur. Pat. Appl., 7 pp.

CODEN: EPXXDW

DT **Patent**

LA German

IC ICM C07J009-00

ICS C11B013-00

CC 32-1 (**Steroids**)

Section cross-reference(s): 12, 26

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1179536	A2	20020213	EP 2001-118218	20010728
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 10038442	A1	20020221	DE 2000-10038442	20000807
US 2002058827	A1	20020516	US 2001-923629	20010807
PRAI DE 2000-10038442	A	20000807		

AB A process for obtaining **sterols** from the residue of **fatty acid** and/or Me ester prodn. is characterized by:
 (a) in the residue on hand free **fatty acids** are esterified with a polyhydroxy or lower monohydroxy alc. , after that (b) the mixt. contg. partial glycerides is alcoholized at 90 - 145.degree. and a pressure of 2 - 10 bar over 2 - 20 mins with a lower alc. in the presence of a basic catalyst, (c) after the alcoholysis the excess lower alc. is distilled from the reaction mixt., (d) the alcoholysis catalyst as well as the included **glycerin** if necessary are sepd., (e) the **fatty acid** ester is distd. from the mixt. and
 (f) the bottoms contg. **sterol** and remaining partial glycerides

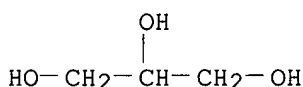
through a further alcoholysis at 115 - 145.degree. and a pressure of 2 - 10 bars over 4 - 8 h leads to free **sterol** esters and **fatty acid** esters. Thus, the **distn.** residue from the cleavage of **soybean oil** is treated with **glycerin** in the presence of tin isooctanoate at 215.degree. and 7 mbar; the residue is then treated with **MeOH** contg. **NaOMe** at 137.degree. and 6 bar for 8 mins.; the **Me** esters are then **distd.** out; then residue is again treated with **MeOH** contg. **NaOMe** for 8 h at 120.degree. and 5 bar; the **methanol** is then flash evapd. and the catalyst neutralized with citric acid; the product mixt. is washed with **H2O** to give a product contg. 7.5% free **sterols** and 0.04% bound **sterols**; the **sterol** mixt. contains: 1.2% **cholesterol**, 1.8% **brassicasterol**, 23.1% **campesterol**, 15.3% **stigmasterol**, 48.9% **.beta.-sitosterol**, 2.2% **.DELTA.5-avenasterol**, 0.3% **.DELTA.7-avenasterol** and 0.05% **citrosadienol**.

- ST **sterol** isolation prodn **fatty acid** methyl ester; glyceride prepn alcoholysis
- IT **Fatty acids**, preparation
 RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
 (esters; process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)
- IT Alcoholysis
 Alcoholysis catalysts
 Crystallization
 Distillation
 (process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)
- IT **Fatty acids**, preparation
 Sterols
 RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
 (process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)
- IT Alcohols, reactions
 Coconut oil
 Palm kernel oil
 Palm oil
 Rape oil
 Soybean oil
 Sunflower oil
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)
- IT Glycerides, preparation
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)
- IT 124-41-4, Sodium methoxide 30323-21-8, Tin isooctanoate
 RL: CAT (Catalyst use); USES (Uses)
 (process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)
- IT 57-88-5P, **Cholesterol**, preparation 83-46-5P, **.beta.-Sitosterol** 83-48-7P, **Stigmasterol** 474-40-8P, **Citrostadienol** 474-62-4P, **Campesterol** 474-67-9P, **Brassicasterol** 18472-36-1P, **.DELTA.5-Avenasterol** 23290-26-8P, **.DELTA.7-Avenasterol**
 RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
 (process for the isolation of **sterols** from the residues of **fatty acid** or **Me** ester prodn.)

IT 56-81-5, Glycerin, reactions 67-56-1,
Methanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for the isolation of **sterols** from the residues of
fatty acid or Me ester prodn.)

IT 56-81-5, Glycerin, reactions 67-56-1,
Methanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for the isolation of **sterols** from the residues of
fatty acid or Me ester prodn.)

RN 56-81-5 HCAPLUS
CN 1,2,3-Propanetriol (9CI) (CA INDEX NAME)



RN 67-56-1 HCAPLUS
CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

L46 ANSWER 5 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:119295 HCAPLUS

DN 136:167560

TI Process for the isolation of **sterols** from the residue of
fatty acid ester production

IN Gutsche, Bernhard; Bonakdar, Mehdi; Wollmann,
Gerhard; Schwarzer, Joerg

PA Cognis Deutschland GmbH, Germany

SO Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW

DT Patent

LA German

IC ICM C07J009-00

CC 32-1 (Steroids)

Section cross-reference(s): 26

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1179535	A1	20020213	EP 2001-118217	20010728
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	DE 10038456	A1	20020221	DE 2000-10038456	20000807
	US 2002082434	A1	20020627	US 2001-923626	20010807
PRAI	DE 2000-10038456	A	20000807		
AB	A process for obtaining sterols from the residue after distn. of alcoholized oils is characterized by: (a) alcoholysis of the mixt. contg. partial glycerides at a temp. of 115 - 145.degree. and a pressure of 2 - 10 over 5 - 20 mins. with a lower alc. contg. a basic catalyst, (b) after alcoholysis the excess lower alc. is distd. from the reaction mixt., (c) the alcoholysis catalyst is sepd. from the remaining glyceride, (d) the fatty acid alkyl ester is distd. from the mixt. and (e) the bottoms contg. sterol ester and residual partial glyceride through a further alcoholysis at 90 - 145.degree. and a pressure of 2 - 10 bar over 4 - 8 h leads to free sterol and fatty acid ester. Thus, the residue from the distn. of palm kernel				

oil was treated with **MeOH** contg. **NaOMe** at 122.degree. and 5 bar; after 8 min. the catalyst is neutralized with aq. citric acid; the **Me** ester is **distd.** at 180.degree. and 3 mbar; the bottoms are treated with more **NaOMe** in **MeOH** at 120.degree. for 5 h.

- ST **sterol** isolation recovery **fatty acid** ester
prodn; **palm** kernel oil alcoholysis **methanol**
methoxide catalyst; glyceride prepn alcoholysis **methanol**
methoxide catalyst
- IT **Fatty acids**, preparation
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(esters; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT Catalysts
(for alcoholysis; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT **Palm** kernel oil
RL: RCT (Reactant); RACT (Reactant or reagent)
(for **fatty acid** ester prodn.; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT Alcohols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(lower, for alcoholysis; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT **Distillation**
(of **fatty acid** esters; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT Alcoholysis
(of glycerides; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT Crystallization
(of **sterols**; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT Glycerides, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(partial alcoholysis of; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT **Sterols**
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT Fats and Glyceridic oils, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vegetable**, alcoholysis of; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT **67-56-1, Methanol**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alcoholysis by; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- IT 124-41-4, Sodium methoxide
RL: CAT (Catalyst use); USES (Uses)
(alcoholysis catalyst; process for the isolation of **sterols** from the residue of **fatty acid** ester prodn.)
- RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Cognis Deutschland GmbH; DE 19916034 C 2000 HCAPLUS
(2) Gutsch; WO 9405650 A 1994 HCAPLUS
- IT **67-56-1, Methanol**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (alcoholysis by; process for the isolation of **sterols** from
 the residue of **fatty acid ester** prodn.)
 RN 67-56-1 HCAPLUS
 CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

L46 ANSWER 6 OF 32 HCAPLUS COPYRIGHT 2002 ACS
 AN 2002:72020 HCAPLUS
 DN 136:136606
 TI Method for preparing a fatty ester and use thereof in pharmaceuticals,
 cosmetics or food industry
 IN Barrault, Joeel; Boisseau, Mickael; Pouilloux, Yannick; Piccirilli,
 Antoine
 PA Laboratoires Pharmascience, Fr.
 SO PCT Int. Appl., 31 pp.
 CODEN: PIXXD2
 DT **Patent**
 LA French
 IC ICM C07C069-52
 ICS A23L001-30
 CC 45-3 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 17, 43, 62

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002006205	A1	20020124	WO 2001-FR2340	20010718
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG FR 2811984 A1 20020125 FR 2000-9506 20000719 PRAI FR 2000-9506 A 20000719				

OS MARPAT 136:136606

AB The invention concerns a method for prepg. a fatty ester, characterized in
 that it consists in subjecting to an esterification reaction at least a
 fatty compd. with .gtoreq.1 alc. compd. selected from the group consisting
 of **sterols**, stanols, 4-methylsterols and their
 hydrogenated homologues, triterpene alcs. and their hydrogenated
 homologues, and mixts. thereof, in the presence of .gtoreq.1 solid
 catalyst selected from a group consisting of lanthanide oxides and the
 mixts. of said oxides. Said method enables to obtain products
 particularly suited for use in the field of pharmaceuticals, in particular
 dermatol., cosmetics and special food prodn. (functional food products,
 medicinal food products and dietetic food products). Thus, reaction of 29
 g mixt. contg. 26-31% **campesterol**, 16-23% **stigmasterol**
 , 48-53% .beta.-**sitosterol**, and traces of campestanol and
 .beta.-sitostanol 7 h at 240.degree. with 15 g Me laurate (I) and 500 rpm
 stirring in the presence of 2.316 g La₂O₃ gave 38% product at 25% I
 conversion and 74% **sterol** mixt. conversion.
 ST fatty ester pharmaceutical food cosmetic additive; methyl laurate
transesterification lanthanide oxide catalyst; stanol deriv fatty
 ester manuf lanthanide oxide catalyst; lanthanide oxide
transesterification catalyst fatty ester **sterol** deriv

- manuf; triterpene alc fatty ester manuf catalyst
- IT Fats and Glyceridic oils, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (almond; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Fats and Glyceridic oils, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (avocado; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Shea tree (*Butyrospermum parkii*)
 (butter; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Fatty acids**, preparation
 RL: COS (Cosmetic use); FFD (Food or feed use); IMF (Industrial
 manufacture); THU (Therapeutic use); BIOL (Biological study); PREP
 (Preparation); USES (Uses)
 (esters; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Fats and Glyceridic oils, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (grape seed; prepg. fatty ester mixts. from mixts. of **sterols**
 , stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Fats and Glyceridic oils, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hazelnut; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Fats and Glyceridic oils, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (mustard; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Annatto
 Lupine (*Lupinus*)
 Moringa
 (oil; prepg. fatty ester mixts. from mixts. of **sterols**,
 stanols, triterpene alcs. and homologues in presence of lanthanide
 oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Cosmetics
 Drugs
 Esterification catalysts
 Food additives
Transesterification catalysts
 (prepg. fatty ester mixts. from mixts. of **sterols**, stanols,
 triterpene alcs. and homologues in presence of lanthanide oxides for
 use in pharmaceuticals, cosmetics or food industry)
- IT Rare earth oxides
 RL: CAT (Catalyst use); USES (Uses)
 (prepg. fatty ester mixts. from mixts. of **sterols**, stanols,
 triterpene alcs. and homologues in presence of lanthanide oxides for
 use in pharmaceuticals, cosmetics or food industry)
- IT Castor oil
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepg. fatty ester mixts. from mixts. of **sterols**, stanols,
 triterpene alcs. and homologues in presence of lanthanide oxides for
 use in pharmaceuticals, cosmetics or food industry)
- IT Cocoa butter
 RL: RCT (Reactant); RACT (Reactant or reagent)

- (prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Coconut oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Corn oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Cottonseed oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Linseed oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Olive oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Palm oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Peanut oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Rape oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Safflower oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Soybean oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Sunflower oil**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT **Fats and Glyceridic oils, reactions**
RL: RCT (Reactant); RACT (Reactant or reagent)
(rice bran; prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)

- IT Fats and Glyceridic oils, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(sesame; prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Fats and Glyceridic oils, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(walnut; prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT Fats and Glyceridic oils, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(wheat germ; prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT 1306-38-3, Ceric oxide, uses 1308-87-8, Dysprosium oxide 1312-81-8, Lanthanum trioxide 1313-97-9, Neodymium oxide 1314-37-0, Ytterbium oxide 12032-20-1, Lutetium oxide 12036-05-4, Praseodymium oxide (PrO2) 12036-25-8, Promethium oxide 12036-32-7, Praseodymium oxide 12036-41-8, Terbium oxide 12036-44-1, Thulium oxide 12037-29-5, Praseodymium oxide (Pr6O11) 12055-62-8, Holmium oxide 12060-58-1, Samarium trioxide 12061-16-4, Erbium oxide 12064-62-9, Gadolinium oxide 12770-85-3, Europium oxide
RL: CAT (Catalyst use); USES (Uses)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT 57-10-3DP, Palmitic acid, esters with **sterols** or stanols
57-11-4DP, Stearic acid, esters with **sterols** or stanols
60-33-3DP, Linoleic acid, esters with **sterols** or stanols
112-38-9DP, Undecylenic acid, esters with **sterols** or stanols
141-22-0DP, Ricinoleic acid, esters with **sterols** or stanols
334-48-5DP, Capric acid, esters with **sterols** or stanols
373-49-9DP, Palmitoleic acid, esters with **sterols** or stanols
463-40-1DP, Linolenic acid, esters with **sterols** or stanols
3712-16-1P 10473-40-2P 20242-97-1P 20242-98-2P, Stigmasteryl myristate 31615-93-7P, Stigmasteryl oleate 41005-65-6P 64144-49-6P, Campesteryl oleate 87189-07-9P 87189-08-0P, Campesteryl myristate 391921-07-6DP, esters with **sterols** or stanols 391921-09-8DP, esters with **sterols** or stanols 391921-11-2DP, esters with **sterols** or stanols
RL: COS (Cosmetic use); FFD (Food or feed use); IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols, triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)
- IT 79-63-0, **Lanosterol** 83-45-4, .beta.-Sitosterol 83-46-5, .beta.-**Sitosterol** 83-47-6, .gamma.-**Sitosterol** 83-48-7, **Stigmasterol** 111-82-0, Methyl laurate 112-62-9, Methyl oleate 124-10-7, Methyl myristate 469-38-5, Cycloartenol 469-39-6, Cycloeucalenol 474-40-8, Citrosteradienol 474-60-2, Campestanol 474-62-4, **Campesterol** 481-25-4, Lophenol 545-48-2, Erythrodilol 559-70-6, .beta.-Amyrine 1059-14-9, **Taraxasterol** 1176-52-9, 24-Methylenelophenol 1449-09-8, 24-Methylenecycloartanol 2464-44-0, 31-Norcyclolaudenol 7448-03-5 11040-28-1, .alpha.-**Sitosterol** 16910-32-0, Obtusifoliol 16910-33-1, 24(28)-Dihydroobtusifoliol 17320-15-9, 31-Norcycloartanol 17757-07-2 33903-16-1 36735-29-2, 24-Ethyllophenol 51013-77-5, 31-**Norlanosterol** 60485-38-3, 31-Norcycloartenol 71418-13-8 104048-15-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepg. fatty ester mixts. from mixts. of **sterols**, stanols,

triterpene alcs. and homologues in presence of lanthanide oxides for use in pharmaceuticals, cosmetics or food industry)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Hoechst Celanese Corp; EP 0585071 A 1994 HCAPLUS
- (2) Kimura, G; US 4748161 A 1988 HCAPLUS
- (3) Takada, A; US 4393044 A 1983 HCAPLUS
- (4) Wester, I; US 5502045 A 1996 HCAPLUS

L46 ANSWER 7 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:730507 HCAPLUS

DN 135:241264

TI **Sterol** ester compositions

IN Schul, David Allen; Berger, Roger Stephen; Howie, John Keeney; Lessen, Eugene H., Jr.; Wong, Vincent York-Leung

PA The Procter + Gamble Company, USA

SO PCT Int. Appl., 40 pp.

CODEN: PIXXD2

DT **Patent**

LA English

IC ICM A23D007-015

ICS A23D007-00; A23D009-013; A23L001-30; C11C003-10; C11B007-00

CC 17-6 (Food and Feed Chemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	WO 2001072136	A1	20011004	WO 2001-US9214	20010323
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,				
	CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI,				
	FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,				
	KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,				
	MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,				
	TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD,				
	RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,				
	DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,				
	BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2002016317	A1	20020207	US 2001-812532	20010320
PRAI	US 2000-192412P	P	20000327		

AB **Sterol** ester compns. having **fatty acid**

moieties comprise > 50% monounsaturd. **fatty acids**

(MUFAs), preferably from about 55% to about 80% MUFAs, and more preferably

from about 60% to about 75% MUFAs. Preferably, the **fatty**

acid moieties comprise less than about 6% saturd. **fatty**

acids (SFAs), more preferably from about 0.1% to about 4% SFAs,

and most preferably from about 0.5% to about 2% SFAs. The **fatty**

acid moieties of the **sterol** ester compns. comprise

at least 50% or less polyunsaturd. **fatty acids** (PUFAs).

Also disclosed are methods for prepg. the **sterol** ester compns.

and the products comprising them.

ST **sterol** ester manuf food

IT Health food

(bars; **sterol** ester compns. for food use)

IT Bakery products

(cakes, mixes for; **sterol** ester compns. for food use)

IT Esterification

(catalytic; **sterol** ester compns. for food use)

IT Food

(dietetic; **sterol** ester compns. for food use)

IT Bakery products

(doughnuts; **sterol** ester compns. for food use)

IT Esterification

(enzymic; **sterol** ester compns. for food use)

IT **Sterols**
 RL: FFD (Food or feed use); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (esters; **sterol** ester compns. for food use)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (esters; **sterol** ester compns. for food use)

IT **Distillation**
 (fractional; **sterol** ester compns. for food use)

IT Confectionery
 (frosting; **sterol** ester compns. for food use)

IT Bakery products
 (frostings; **sterol** ester compns. for food use)

IT Sauces (condiments)
 (gravy; **sterol** ester compns. for food use)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (monounsatsd.; **sterol** ester compns. for food use)

IT Cooking
 (oils for; **sterol** ester compns. for food use)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (polyunsatsd.; **sterol** ester compns. for food use)

IT Cheese
 (process; **sterol** ester compns. for food use)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (satsd.; **sterol** ester compns. for food use)

IT Food
 (snack; **sterol** ester compns. for food use)

IT **Sterols**
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (soybean; **sterol** ester compns. for food use)

IT Food
 (spreads; **sterol** ester compns. for food use)

IT Anticholesteremic agents
 Bakery products
 Beverages
 Capsules
 Cheese
 Esterification catalysts
 Food additives
 Fractionation
 Ice cream
 Margarine
 Mayonnaise
 Peanut butter
 Salad dressings
 Sauces (condiments)
Transesterification
 (**sterol** ester compns. for food use)

IT Diglycerides
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (**sterol** ester compns. for food use)

IT Shortening
 RL: FFD (Food or feed use); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (**sterol** ester compns. for food use)

IT Canola oil
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (sterol ester compns. for food use)

IT Fats and Glyceridic oils, biological studies
 RL: FFD (Food or feed use); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (vegetable; sterol ester compns. for food use)

IT Milk preparations
 (yogurt; sterol ester compns. for food use)

IT 124-41-4, Sodium methylate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (sterol ester compns. for food use)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Chung, D; WO 0061694 A 2000 HCAPLUS
- (2) Harburger, O; GB 1405346 A 1975 HCAPLUS
- (3) Howell, T; JOURNAL OF LIPID RESEARCH 1998, V39(4), P892 HCAPLUS
- (4) Lipidia Holding S A; EP 0771531 A 1997 HCAPLUS
- (5) Raisio Benecol Oy; WO 9956558 A 1999 HCAPLUS
- (6) Raisio Margariini Oy; WO 9219640 A 1992 HCAPLUS
- (7) Unilever Plc; WO 9801126 A 1998 HCAPLUS
- (8) Unilever Plc; EP 0897970 A 1999 HCAPLUS
- (9) Unilever Plc; EP 0898896 A 1999 HCAPLUS
- (10) Wester, I; WO 9819556 A 1998 HCAPLUS

L46 ANSWER 8 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:698671 HCAPLUS

DN 135:241273

TI Fat compositions manufactured by transesterification and processed food containing the compositions

IN Yamashita, Hitoshi; Kawashima, Takeshi; Kato, Shoichi

PA Kanegafuchi Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM A23D009-007

ICS A23L001-40; C11C003-00; C11C003-10

CC 17-9 (Food and Feed Chemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001258474	A2	20010925	JP 2000-73648	20000316
AB	The fat compns., which contain no cholesterol and little trans-fatty acids and show low crystn. rate, are manufd. by transesterifying a mixt. of palm oil -derived fats and plant oils contg. .gtoreq.80% C18 fatty acid residues. Processed foods, e.g. roux for curry, stew, etc. contg. the compns. are also claimed. A mixt. of a high-melting fraction of palm oil 55, palm oil 40, and highly-hydrogenated erucic acid-low rape oil 5% was heated in the presence of MeONa to give a compn. contg. 0.8% trans-fatty acids . Solid curry roux using the compn. showed no whitening upon storage at 30.degree. for 30 days.				
ST	hydrogenated palm oil rapeseed oil transesterification fatty food; roux fat hydrogenated plant oil transesterification product				
IT	Canola oil Palm oil RL: RCT (Reactant); RACT (Reactant or reagent) (hydrogenated; manuf. of fat compns. for roux for curry and stew by transesterification of palm oil -derived fat				

- with stearic acid-high plant fat)
- IT Food
Transesterification
 (manuf. of fat compns. for roux for curry and stew by
transesterification of palm oil-derived fat
 with stearic acid-high plant fat)
- IT **Palm oil**
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (manuf. of fat compns. for roux for curry and stew by
transesterification of palm oil-derived fat
 with stearic acid-high plant fat)
- IT Condiments
 (roux; manuf. of fat compns. for roux for curry and stew by
transesterification of palm oil-derived fat
 with stearic acid-high plant fat)
- IT Fats and Glyceridic **oils**, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**vegetable**; manuf. of fat compns. for roux for curry and stew
 by **transesterification of palm oil**
 -derived fat with stearic acid-high plant fat)

L46 ANSWER 9 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:548191 HCAPLUS

DN 135:137639

TI Method for enzymic preparation of **sterol fatty acid esters** for food

IN Norinobu, Seiji; Senoo, Naoko; Kaneko, Shoji; Sato, Fumi; Mankura, Mitsumasa

PA Ikeda Shokken K. K., Japan

SO Jpn. Tokkyo Koho, 9 pp.

CODEN: JTXXFF

DT **Patent**

LA Japanese

IC ICM C07J075-00

ICS C07J009-00

CC 32-1 (**Steroids**)

Section cross-reference(s): 17

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 3192411	B1	20010730	JP 2001-34474	20010209
	US 2002098536	A1	20020725	US 2001-988919	20011119
	EP 1209239	A2	20020529	EP 2001-250411	20011122
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	JP 2000-358092	A	20001124		
	JP 2001-34465	A	20010209		
	JP 2001-34474	A	20010209		
AB	An enzyme having fat-decomp. activity (cholesterol esterase or lipase activity) is added to a raw material of fats or oils contg. sterols and triacyl glycerols as the main components to form sterol fatty acid esters , followed by a few purifn. steps to give sterol fatty acid esters suitable for food. The deodorization scum oil generated in the deodorization step of plant fats or oils (in particular soybean oil) is used as the raw material for sterols in the above step and fatty acid esters in the scum oil are hydrolyzed. The synthesis of sterol fatty acid esters is carried out by an enzyme having fat-decomp. activity and selectively acting on cis fatty acids under controlled temp. and water content in the reaction system. The purifn. of the sterol fatty acid esters involves steps of (1) mainly removing unreacted				

sterols and fatty acids by mol. distn

., (2) mainly removing coloration components by the treatment with adsorbent, and (3) mainly removing odorous components by steam distn. to obtain **sterol-fatty acid** esters for food which are superior in phys. properties, safety, and quality in the functional aspect such as color, smell, and taste. This process provides inexpensive **sterol** fatty esters which hardly contain **trans-fatty acids** and thus are safe for general foods, health foods, or medicinal raw material. **Sterols** such as .beta.-**sitosterol** and .beta.-**sitostanol** which are known to possess the activity of lowering serum **cholesterol** (anticholesteremic activity) are obtained as a part of the unsaponified part of plant **oils** such as **soybean oil** and **rapeseed oil**. This process converts **sterols** to their **fatty acid** esters which are more lipophilic than **sterol** themselves and thus improve bioavailability.

ST **sterol fatty acid** ester enzymic prepn health food

IT **Transesterification**

(biol.; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl **glycerols** in the presence of lipase)

IT **Fatty acids**, preparation

RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(esters; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl **glycerols** in the presence of lipase)

IT **Candida**

Mucor

Pseudomonas

(lipase or **cholesterol** esterase from; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl **glycerols** in the presence of lipase)

IT **Anticholesteremic agents**

Health food

(method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl **glycerols** in the presence of lipase)

IT **Fats and Glyceridic oils**, reactions

Sitosterols

Sterols

RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl **glycerols** in the presence of lipase)

IT **Distillation**

(mol., purifn. by; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl **glycerols** in the presence of lipase)

IT **Distillation**

(steam, purifn. by; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of **sterols** with triacyl

glycerols in the presence of lipase)

IT **Soybean oil**
 RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
 (**sterols** of scum oil by deodorization of; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of **sterols** with triacyl **glycerols** in the presence of lipase)

IT Fats and Glyceridic **oils**, reactions
 RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
 (**vegetable, sterols** of scum oil by deodorization of; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of **sterols** with triacyl **glycerols** in the presence of lipase)

IT 83-45-4DP, .beta.-Sitostanol, **fatty acid** esters
 83-46-5DP, .beta.-Sitosterol, **fatty acid** esters
 RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of **sterols** with triacyl **glycerols** in the presence of lipase)

IT 9001-62-1, Lipase 9026-00-0, **Cholesterol** esterase
 RL: CAT (Catalyst use); USES (Uses)
 (method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of **sterols** with triacyl **glycerols** in the presence of lipase)

L46 ANSWER 10 OF 32 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:548190 HCAPLUS
 DN 135:137638
 TI Method for enzymic preparation of **sterol fatty acid** esters for food
 IN Mankura, Mitsumasa; Norinobu, Seiji; Senoo, Naoko; Kaneko, Shoji; Sato, Fumi
 PA Ikeda Shokken K. K., Japan
 SO Jpn. Tokkyo Koho, 14 pp.
 CODEN: JTXFF
 DT **Patent**
 LA Japanese
 IC ICM C07J075-00
 ICS C07J009-00
 CC 32-1 (**Steroids**)
 Section cross-reference(s): 17
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 3192410	B1	20010730	JP 2001-34465	20010209
	US 2002098536	A1	20020725	US 2001-988919	20011119
	EP 1209239	A2	20020529	EP 2001-250411	20011122
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	JP 2000-358092	A	20001124		
	JP 2001-34465	A	20010209		
	JP 2001-34474	A	20010209		

- AB A **distn.** fraction contg. **sterols** is reacted with fats or **oils** contg. triacyl **glycerols** as the main components by adding an enzyme having fat-decompg. activity (lipase activity) to form **sterol fatty acid** esters, followed by a few purifn. steps to give **sterol fatty acid** esters which are suitable for food. The deodorization scum oil generated in the deodorization step of plant fats or **oils** is used as the raw material for **sterols**. **Fatty acid** esters in the scum oil are hydrolyzed, subjected to the first mol. **distn.** for removing **fatty acids** to recover the **sterol** fraction, to which fats or **oils** contg. triacyl **glycerols** as the main components are added and used as the raw material in the above process. The enzyme-catalyzed synthesis of **sterol** fatty esters is carried out under controlled temp. and water content in the reaction system. The purifn. of the **sterol fatty acid** esters involves steps of (1) mainly removing unreacted **sterols** and **fatty acids** by the second mol. **distn.**, (2) mainly removing coloration components by the treatment with adsorbent, and (3) mainly removing odorous components by steam **distn.** to obtain **sterol-fatty acid** esters for food which are superior in phys. properties, safety, and quality in the functional aspect such as color, smell, and taste. This process provides inexpensive **sterol** fatty esters which hardly contain trans-**fatty acids** or other degraded **fatty acids** and thus are highly safe for general foods, health foods, or medicinal raw material. **Sterols** such as .beta.-sitosterol and .beta.-sitostanol which are known to possess the activity of lowering serum **cholesterol** (anticholesteremic activity) are obtained as a part of the unsaponified part of plant **oils** such as soybean oil and rapeseed oil. This process converts **sterols** to their **fatty acid** esters which are more lipophilic than **sterol** themselves and thus improve bioavailability.
- ST **sterol fatty acid** ester enzymic prepn health food
- IT Charcoal
Clays, uses
RL: NUU (Other use, unclassified); USES (Uses)
(activated, adsorbent; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of fats or oils with **sterols** in presence of lipase)
- IT Silica gel, uses
RL: NUU (Other use, unclassified); USES (Uses)
(adsorbent; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of fats or oils with **sterols** in presence of lipase)
- IT **Transesterification**
(biol., enzymic; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of fats or oils with **sterols** in presence of lipase)
- IT *Alcaligenes*
Candida
Mucor
Pseudomonas
Rhizopus
(**cholesterol** esterase or lipase from; method for enzymic prepn. of **sterol fatty acid** esters for health food by transesterification of fats or oils with **sterols** in presence of lipase)
- IT **Fatty acids**, preparation

RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(esters; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Sitosterols**

Sterols

RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(**fatty acid** ester; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Adsorbents**

Anticholesteremic agents

Health food

(method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Fats and Glyceridic oils, reactions**

Glycerides, reactions

RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Distillation**

(mol., purifn. by; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Distillation**

(steam, purifn. by; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Soybean oil**

RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(**sterols** of scum oil by deodorization of; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **Fats and Glyceridic oils, reactions**

RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(**vegetable, sterols** of scum oil by deodorization of; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

IT **83-45-4P, .beta.-Sitostanol 83-46-5P, .beta.-Sitosterol**

RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(**fatty acid** ester; method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in

presence of lipase)
 IT 9001-62-1, Lipase 9026-00-0, **Cholesterol** esterase
 RL: CAT (Catalyst use); USES (Uses)
 (method for enzymic prepn. of **sterol fatty acid** esters for health food by **transesterification** of fats or oils with **sterols** in presence of lipase)

L46 ANSWER 11 OF 32 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:417373 HCAPLUS
 DN 135:18832
 TI Low calorie fat materials that eliminate laxative side effect
 IN Bernhardt, Christian A.; Taylor, Harry M.
 PA USA
 SO U.S. Pat. Appl. Publ., 10 pp., Cont.-in-part of U.S. Ser. No. 831,737, abandoned.
 CODEN: USXXCO

DT **Patent**
 LA English
 IC ICM A61K031-70
 ICS A01N043-04
 NCL 514023000
 CC 17-9 (Food and Feed Chemistry)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001003119	A1	20010607	US 1988-153880	19880209
	JP 63230798	A2	19880927	JP 1987-56407	19870311
	JP 2703225	B2	19980126		
PRAI	US 1986-831737	B2	19860220		

AB The present invention comprises an edible, wholly or partially nondigestible low calorie fat material having a non-Newtonian pseudoplastic rheol. at body temp. In particular, at 100.degree.F (37.8.degree.C) the fat material has: (a) a viscosity of at least about 2.5 P at a shear rate of 800/s, a viscosity of at least about 4.0 P at a shear rate of 100/s and a viscosity of at least about 15.0 P at a shear rate of 10/s; (b) a yield point of at least about 2500 dynes/cm²; (c) a thixotropic area of at least about 0.20.times.10⁻⁶ dynes/cm²-sec.; and (d) a liq./solid stability of at least about 50. The compn. is useful as a substitute for triglyceride fats in low calorie fat-contg. food products, and as a method for reducing serum **cholesterol**. Examples of specific low calorie fat materials that can be used in this invention include sugar **fatty acid** polyesters, polyglycerol **fatty acid** polyesters, and tricarboxylic acids esterified with fatty alcs.

ST fat substitute hypocholesteremic food

IT **Soybean oil**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (Me ester; low calorie fat materials that eliminate laxative side effect)

IT Bakery products
 (cakes; low calorie fat materials that eliminate laxative side effect)

IT Bakery products
 (cookies; low calorie fat materials that eliminate laxative side effect)

IT Food
 (dietetic; low calorie fat materials that eliminate laxative side effect)

IT Vitamins
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (fat-sol.; low calorie fat materials that eliminate laxative side effect)

IT Alditols

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (fatty acid polyesters; low calorie fat materials
 that eliminate laxative side effect)

- IT Cooking
 (frying, fats for; low calorie fat materials that eliminate laxative
 side effect)
- IT Anticholesteremic agents
 Food functional properties
 Food rheology
 Food viscosity
 Margarine
 Mayonnaise
 Salad dressings
Transesterification
 (low calorie fat materials that eliminate laxative side effect)
- IT Fat substitutes
 Shortening
 Vitamins
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (low calorie fat materials that eliminate laxative side effect)
- IT Food
 (low-calorie; low calorie fat materials that eliminate laxative side
 effect)
- IT Cooking
 (oils for; low calorie fat materials that eliminate laxative side
 effect)
- IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (sucrose polyesters; low calorie fat materials that eliminate laxative
 side effect)
- IT Carboxylic acids, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (tricarboxylic acids, fatty alc. esters; low calorie fat materials that
 eliminate laxative side effect)
- IT 57-88-5, **Cholesterol**, biological studies
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological
 study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC
 (Process)
 (low calorie fat materials that eliminate laxative side effect)
- IT 57-10-3D, Palmitic acid, sucrose polyesters 57-11-4D, Stearic acid,
 sucrose polyesters 57-50-1D, Sucrose, polyesters 60-33-3D, Linoleic
 acid, sucrose polyesters 112-80-1D, Oleic acid, sucrose polyesters
 112-85-6D, Behenic acid, sucrose polyesters 463-40-1D, Linolenic acid,
 sucrose polyesters 506-30-9D, Arachidic acid, sucrose polyesters
 25618-55-7D, Polyglycerol, **fatty acid** esters
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (low calorie fat materials that eliminate laxative side effect)

L46 ANSWER 12 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:338551 HCAPLUS

DN 134:326668

TI Process for the purification of **phytosterol** from **fatty
 acids** and their esters

IN Hattori, Yasuyuki; Kono, Jun; Horio, Masamitsu

PA Kao Corporation, Japan

SO PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DT **Patent**

LA English

IC ICM C07J009-00

ICS C11B013-00

CC 32-7 (**Steroids**)

Section cross-reference(s): 17, 45, 62, 63

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001032682	A1	20010510	WO 2000-JP7753	20001102
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	JP 2001131197	A2	20010515	JP 1999-313619	19991104
	JP 2001131199	A2	20010515	JP 1999-313620	19991104
	EP 1226157	A1	20020731	EP 2000-971772	20001102
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
PRAI	JP 1999-313619	A	19991104		
	JP 1999-313620	A	19991104		
	WO 2000-JP7753	W	20001102		

AB This invention provides a process for producing **phytosterol**, which comprises (A) bringing a crude **fatty acid** product derived from a **vegetable** fat and/or **oil** including **phytosterol** into contact with a mixed solvent of an org. solvent and water to crystallize the **phytosterol** and sepg. the crystals from the mixed solvent; or (B) mixing a crude **fatty acid** ester derived from a **vegetable** fat and/or **oil** including the **phytosterol** and a **fatty acid** ester with a lower alc., allowing the mixt. to stand at a temp. of 1 to 40 .degree.C to ppt. crystals including the **fatty acid** ester and sepg. the crystals to take the lower alc. soln. including the **phytosterol**. Thus, 5,000 g of a crude ext. of **palm kernel oil** was distd. to give 100 g of a residue contg. **phytosterol fatty acid** esters and 4,900 g of a **fatty acid** Me ester **distillate**. The crude 100 g **phytosterol fatty acid** ester residue was then transesterified in **methanol** and water to give a 52% pure mixt. of **phytosterols**.

ST **phytosterol** prepn **fatty acid** ester transesterification

IT **Sterols**

RL: IMF (Industrial manufacture); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(Process for the purifn. of **phytosterol** from **fatty acids** and their esters)

IT **Fatty acids**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(esters; Process for the purifn. of **phytosterol** from **fatty acids** and their esters)

IT **Transesterification**

(process for the prepn. and purifn. of **phytosterols** from **fatty acids** and their esters)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Anon; PATENT ABSTRACTS OF JAPAN 1986, V010(078), PC-335
- (2) Cognis Deutschland Gmbh; WO 0061603 A 2000
- (3) Daicel Chem Ind Ltd; JP 61050996 A 1986 HCAPLUS
- (4) Eastman Kodak Co; GB 895145 A 1962
- (5) Eastman Kodak Co; GB 1008767 A 1965 HCAPLUS
- (6) Fizet, C; US 5487817 A 1996 HCAPLUS
- (7) Julian, D; US 3691211 A 1972 HCAPLUS
- (8) Kureha Kagaku Kogyo Kk; JP 60215699 A 1985 HCAPLUS
- (9) Sumner, C; US 5424457 A 1995 HCAPLUS

L46 ANSWER 13 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:338293 HCAPLUS

DN 134:325524

TI Edible fat blends based on olive oil
 IN Wester, Ingmar; Orte, Juha
 PA Raisio Benecol Oy, Finland
 SO PCT Int. Appl., 22 pp.
 CODEN: PIXXD2

DT **Patent**

LA English

IC A23L001-30; A23D009-007

CC 17-9 (Food and Feed Chemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001032035	A1	20010510	WO 2000-FI964	20001103
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	BR 2000015133	A	20020618	BR 2000-15133	20001103
	EP 1225811	A1	20020731	EP 2000-976093	20001103
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
	US 2002031595	A1	20020314	US 2001-956144	20010920
PRAI	FI 1999-2402	A	19991105		
	US 1999-436001	A	19991108		
	WO 2000-FI964	W	20001103		
AB	Olive oil based products, based on the virgin olive oils, contg. plant stanol and/or sterol fatty acid ester blends and methods for prepg. such olive oil based products.				
ST	olive oil fat blend stanol sterol ester				
IT	Temperature effects, biological (cold; edible fat blends based on olive oil)				
IT	Crystallization Food functional properties Transesterification catalysts (edible fat blends based on olive oil)				
IT	Olive oil Soybean oil Sunflower oil RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses) (edible fat blends based on olive oil)				
IT	Fats and Glyceridic oils, biological studies RL: FFD (Food or feed use); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses) (edible fat blends based on olive oil)				
IT	Sterols RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses) (esters; edible fat blends based on olive oil)				
IT	Olive oil RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses) (extra virgin; edible fat blends based on olive oil)				
IT	Alcohols, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (fatty acid esters; edible fat blends based on olive oil)				
IT	Linseed oil RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses) (linola; edible fat blends based on olive oil)				
IT	Fatty acids , biological studies RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)				

(polyunsatd.; edible fat blends based on olive oil)

IT **Sterols**
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (stanol esters; edible fat blends based on olive oil)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (**sterol** and stanol esters; edible fat blends based on olive oil)

IT Fats and Glyceridic **oils**, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (**vegetable**; edible fat blends based on olive oil)

IT 57-11-4, Stearic acid, biological studies 83-45-4, Sitostanol 83-46-5
 474-60-2, Campestanol
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (edible fat blends based on olive oil)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Chung, D; WO 0061694 A 2000 HCAPLUS
 (2) Eugster, C; US 5270041 A 1993 HCAPLUS
 (3) Proctor & Gamble; GB 1284814 A 1972 HCAPLUS
 (4) Wester, I; US 5958913 A 1999 HCAPLUS

L46 ANSWER 14 OF 32 HCAPLUS COPYRIGHT 2002 ACS
 AN 2000:533424 HCAPLUS
 DN 133:120506
 TI Procedure for the production of **phytosterols** from mixts. with
fatty acid esters
 IN Sicre, Christophe; Armengaud, Rene; **Schwarzer, Joerg**;
Gutsche, Bernhard; Musholt, Markus; Jordan, Volkmar
 PA **Cognis Deutschland G.m.b.H., Germany**
 SO Ger., 4 pp.
 CODEN: GWXXAW
 DT **Patent**
 LA German
 IC ICM C07J009-00
 CC 32-7 (**Steroids**)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19916034	C1	20000803	DE 1999-19916034	19990409
	WO 2000061603	A1	20001019	WO 2000-EP2849	20000331
	W: AU, CA, JP, NZ, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1169335	A1	20020109	EP 2000-926783	20000331
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
PRAI	DE 1999-19916034	A	19990409		
	WO 2000-EP2849	W	20000331		
AB	A procedure for the prodn. of phytosterols from mixts. with fatty acid esters and methanol is suggested through the well-known crystn., filtration, washing and drying process, which are characterized by the fact that one uses methanol in quantities from 25 to 75% relative to the sterol . Thus, a soybean sterol mixt. stirred with coconut oil Me esters at 90.degree. is treated with MeOH ; the temp. is lowered to 74.degree. and the steros allowed to crystallize; the crystals are filtered and washed with methanol and dried to give 93.7% pure sterol .				
ST	phytosterol sepn purifn crystn; fatty acid ester removal phytosterol mixt; rape plant sterol sepn purifn crystn				
IT	Coconut oil				

RL: REM (Removal or disposal); PROC (Process)
 (Me esters; prepn. of **phytosterols** from mixts. with **fatty acid esters**)

IT **Fatty acids**, processes
 RL: REM (Removal or disposal); PROC (Process)
 (esters; prepn. of **phytosterols** from mixts. with **fatty acid esters**)

IT Rape (plant)
 Soybean (Glycine max)
 (**phytosterols** from; prepn. of **phytosterols** from mixts. with **fatty acid esters**)

IT **Sterols**
 RL: PUR (Purification or recovery); PREP (Preparation)
 (**phytosterols**; prepn. of **phytosterols** from mixts. with **fatty acid esters**)

IT Crystallization
 Filtration
 (prepn. of **phytosterols** from mixts. with **fatty acid esters**)

IT **67-56-1, Methanol**, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (prepn. of **phytosterols** from mixts. with **fatty acid esters**)

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Anon; EP 0656894 B1 HCAPLUS

IT **67-56-1, Methanol**, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (prepn. of **phytosterols** from mixts. with **fatty acid esters**)

RN 67-56-1 HCAPLUS
 CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

L46 ANSWER 15 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:442173 HCAPLUS

DN 133:57976

TI Procedure for the production of **phytosterols**.

IN **Schwarzer, Joerg; Gutsche, Bernhard**

PA **Cognis Deutschland Gmbh, Germany**

SO Ger., 4 pp.

CODEN: GWXXAW

DT **Patent**

LA German

IC ICM C07J009-00

ICS C07J075-00

CC 17-2 (Food and Feed Chemistry)

Section cross-reference(s): 32

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19906551	C1	20000629	DE 1999-19906551	19990213
	WO 2000047570	A1	20000817	WO 2000-EP903	20000204
	W: AU, CA, JP, NZ, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1150968	A1	20011107	EP 2000-907499	20000204
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRAI DE 1999-19906551 A 19990213
 WO 2000-EP903 W 20000204

AB Suggested procedures for prodn. of **phytosterols** by alk.-catalyzed **transesterification** of residues from prodn. of Me esters with **methanol**, neutralization of the catalyst and sepn. of nonconverted alc. **Transesterification** products are thus obtained at a temp. at which they are present in liq. condition in satd. hydrocarbons with 5 to 10 carbon atoms, and, if necessary under addn. of a sufficient quantity of aq. **methanol**, crystn. upon temp. lowering, with further filtration, washing and drying. High yields of **phytosterols** are obtained and these are essentially free from citrostadienol.

ST **phytosterol** purifn alk **transesterification**
 IT Temperature effects, biological
 (heat; procedure for the prodn. of **phytosterols**)

IT **Sterols**
 RL: FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (phyto-; procedure for the prodn. of **phytosterols**)

IT Crystallization
Transesterification
 (procedure for the prodn. of **phytosterols**)

IT **Tall oil** pitch
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (residue from manuf. of; procedure for the prodn. of **phytosterols**)

IT Hydrocarbons, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (short-chain, solvents; procedure for the prodn. of **phytosterols**)

IT **Fatty acids**, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**sunflower-oil**, Me esters, residue from manuf. of; procedure for the prodn. of **phytosterols**)

IT **67-56-1, Methanol**, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (procedure for the prodn. of **phytosterols**)

IT 474-40-8, Citrostadienol
 RL: REM (Removal or disposal); PROC (Process)
 (procedure for the prodn. of **phytosterols**)

IT 110-54-3, Hexane, biological studies 142-82-5, Heptane, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (solvent; procedure for the prodn. of **phytosterols**)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Anon; EP 0333472 A2 HCAPLUS
 (2) Anon; EP 0610742 A1 HCAPLUS
 (3) Anon; EP 0656894 B1 HCAPLUS
 (4) Anon; GB 2145079 A HCAPLUS
 (5) Anon; DE 3226225 A1 HCAPLUS

IT **67-56-1, Methanol**, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (procedure for the prodn. of **phytosterols**)

RN 67-56-1 HCAPLUS
 CN Methanol (8CI, 9CI) (CA INDEX NAME)

H3C-OH

AN 1999:626208 HCAPLUS
 DN 131:243469
 TI Method for producing stanols
 IN **Schwarzer, Jorg**; Gritz, Egbert; **Gutsche, Bernhard**;
 Krause, Werner; Turner, Stephen W.
 PA **Cognis Deutschland GmbH, Germany**
 SO PCT Int. Appl., 15 pp.
 CODEN: PIXXD2
 DT **Patent**
 LA German
 IC ICM C07J009-00
 CC 32-7 (**Steroids**)

Section cross-reference(s): 48, 63

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9948907	A1	19990930	WO 1999-EP1660	19990313
	W: AU, BG, BR, BY, CA, CN, CZ, HU, ID, IS, JP, KR, LT, LV, MX, NO, NZ, PL, RO, RU, SI, SK, TR, UA				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9930347	A1	19991018	AU 1999-30347	19990313
	EP 1066313	A1	20010110	EP 1999-911789	19990313
	R: DE, FR				
	US 2001007036	A1	20010705	US 1999-273518	19990322
PRAI	US 1998-79001P	P	19980323		
	WO 1999-EP1660	W	19990313		

AB The invention relates to a method for producing stanols. Stanols are produced by hydrogenation of **sterols** in the presence of palladium catalysts in an org. soln. Alc., paraffin carbohydrates and mixts. of alc. and carbohydrates can be used as solvents. The inventive method is suitable for the mass-scale prodn. of stanols as a result of its reduced consumption of solvent and good hydrogenated stanol yield.

ST **sterol** hydrogenation; stanol prepn

IT Hydrogenation

(method for producing stanols)

IT **Sterols**

RL: RCT (Reactant); RACT (Reactant or reagent)

(method for producing stanols)

IT **Sterols**

RL: RCT (Reactant); RACT (Reactant or reagent)

(soya; method for producing stanols)

IT **Sterols**

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(stanols; method for producing stanols)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Ekblom Jari; WO 9838206 A 1998 HCAPLUS
- (2) Hautala, M; WO 9734917 A 1997 HCAPLUS
- (3) Jo, Y; REACTIVE & FUNCTIONAL POLYMERS 1996, V29(2), P91 HCAPLUS
- (4) Raisio Tehtaat Oy Ab; WO 9806405 A 1998 HCAPLUS
- (5) Villemin, D; SYNTHETIC COMMUNICATIONS 1989, V19(16), P2833 HCAPLUS
- (6) Wester Ingmar; WO 9819556 A 1998 HCAPLUS

L46 ANSWER 17 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:139792 HCAPLUS

DN 130:196087

TI Process for the production of stanol esters for food products

IN Van Amerongen, Marnix P.; Lievense, Lourus Cornelis

PA Unilever N.V., Neth.; Unilever PLC

SO Eur. Pat. Appl., 7 pp.

CODEN: EPXXDW

DT **Patent**
 LA English
 IC ICM C11C003-10
 ICS A23D009-013; A23D007-00; A23L001-24; C07J009-00
 CC 17-9 (Food and Feed Chemistry)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 897970	A1	19990224	EP 1998-202588	19980731
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6106886	A	20000822	US 1998-135722	19980818
	ZA 9807540	A	20000221	ZA 1998-7540	19980820
	CA 2245482	AA	19990222	CA 1998-2245482	19980821
PRAI	EP 1997-202597	A	19970822		

AB The invention concerns a process for the prepn. of stanol **fatty acid** esters mixts. by interesterification of stanol **fatty acid** esters starting material, of which at least 50 % of the **fatty acid** groups are satd., with **fatty acid** mixts. contg. at least 35 %, and preferably at least 45 %, of polyunsatd. **fatty acid** (PUFA) groups, and wherein the stanol **fatty acid** ester starting material is prepd. preferably by hardening of **sterol fatty acid** esters. The **sterol fatty acid** esters are preferably prepd. by the esterification of **phytosterols** with a **fatty acid** ester mixt. comprising at least 70 % of C18 **fatty acids**; all steps can be carried out in the absence of a solvent. Also claimed are food products, e.g. spreads and dressings, comprising the stanol **fatty acid** esters obtained by the process.

ST stanol **fatty acid** ester interesterification food;
sterol fatty acid ester interesterification spread

IT Glycerides, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (PUFA-rich; prodn. of stanol **fatty acid** esters by interesterification for food products contg.)

IT Condiments
 (dressings; prodn. of stanol **fatty acid** esters by interesterification for food products)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); IMF (Industrial manufacture); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (esters, stanol esters; prodn. of stanol **fatty acid** esters by interesterification for food products)

IT **Sterols**
 RL: FFD (Food or feed use); IMF (Industrial manufacture); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (esters; prodn. of stanol **fatty acid** esters by interesterification for food products)

IT Food
 (fatty; prodn. of stanol **fatty acid** esters by interesterification for food products)

IT **Fatty acids**, biological studies
 RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
 (polyunsatd.; prodn. of stanol **fatty acid** esters by interesterification for food products contg.)

IT Butter substitutes
 Esterification
Transesterification

- (prodn. of stanol **fatty acid** esters by
interesterification for food products)
- IT Fats and Glyceridic oils, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(prodn. of stanol **fatty acid** esters by
interesterification for food products)
- IT **Fatty acids**, biological studies
Sterols
Sunflower oil
RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT
(Reactant or reagent); USES (Uses)
(prodn. of stanol **fatty acid** esters by
interesterification for food products)
- IT **Palm kernel oil**
Palm oil
Rape oil
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(prodn. of stanol **fatty acid** esters by
interesterification for food products contg.)
- IT **Sterols**
RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT
(Reactant or reagent); USES (Uses)
(soya; prodn. of stanol **fatty acid** esters by
interesterification for food products)
- IT Food
(spreads; prodn. of stanol **fatty acid** esters by
interesterification for food products)
- IT **Fatty acids**, biological studies
RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT
(Reactant or reagent); USES (Uses)
(**sunflower-oil**, Me esters; prodn. of stanol
fatty acid esters by interesterification for food
products)
- IT **Fatty acids**, biological studies
RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT
(Reactant or reagent); USES (Uses)
(**sunflower-oil**; prodn. of stanol **fatty
acid** esters by interesterification for food products)
- IT 57-10-3DP, Palmitic acid, stanyl esters 57-11-4DP, Octadecanoic acid,
stanyl esters, biological studies 83-45-4DP, Sitostanol, **fatty
acid** esters 474-60-2DP, Campestanol, **fatty
acid** esters
RL: FFD (Food or feed use); IMF (Industrial manufacture); RCT (Reactant);
BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
USES (Uses)
(prodn. of stanol **fatty acid** esters by
interesterification for food products)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Harburger Oelwerke Brinckman M; GB 1405346 A 1975 HCAPLUS
- (2) Miettinen Tatu; US 5502045 A 1996 HCAPLUS
- (3) Nisshin Oil Mills LtdThe; JP 62055040 A 1987 HCAPLUS
- (4) Raisio Tehtaat Oy Ab; WO 9806405 A 1998 HCAPLUS
- (5) Unilever Nv; WO 9801126 A 1998 HCAPLUS
- (6) Wester IngmarRaisio; WO 9819556 A 1998 HCAPLUS

L46 ANSWER 18 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN 1998:608633 HCAPLUS
DN 129:215977
TI Process for the preparation of stanol esters
IN Ekblom, Jari
PA Raisio Benecol Ltd., Finland
SO PCT Int. Appl., 15 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07J009-00

CC 17-2 (Food and Feed Chemistry)

Section cross-reference(s): 32

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9838206	A1	19980903	WO 1998-FI166	19980225
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
	FI 9700802	A	19980827	FI 1997-802	19970226
	AU 9861017	A1	19980918	AU 1998-61017	19980225
	EP 975656	A1	20000202	EP 1998-905436	19980225
	EP 975656	B1	20020508		
	R:	AT, BE, DE, DK, FR, GB, IT, LU, NL, SE, FI			
	JP 2001516344	T2	20010925	JP 1998-537346	19980225
	AT 217320	E	20020515	AT 1998-905436	19980225
	US 2002045773	A1	20020418	US 1999-367836	19991122
PRAI	FI 1997-802	A	19970226		
	WO 1998-FI166	W	19980225		

AB The invention relates to a process for the prepn. of stanol esters by hydrogenating a **sterol** blend in a hydrogenation solvent and at an elevated temp. in the presence of a hydrogenation catalyst, by removing the hydrogenation catalyst from the obtained hot reaction soln., by **transesterifying** the intermediate stanol blend with a **fatty acid** Me ester at an elevated temp. and in the presence of a **transesterification** catalyst, and by finally purifying the stanol ester blend thus obtained. The intermediate stanol blend is neither crystd. nor removed from the reaction soln. but the hydrogenation solvent is replaced therein at least in part by a **transesterification** reagent. Alternatively, the hydrogenation solvent may also be used as the **transesterification** solvent, and preferably also as the **transesterification** reagent.

ST stanol ester **transesterification** hydrogenation; **sterol** ester **transesterificaion** hydrogenation

IT **Fatty acids**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(Me esters; process for the prepn. of stanol esters)

IT Metal alkoxides

RL: CAT (Catalyst use); USES (Uses)

(alkali metal; process for the prepn. of stanol esters)

IT Alkali metal compounds

RL: CAT (Catalyst use); USES (Uses)

(alkoxides; process for the prepn. of stanol esters)

IT **Fatty acids**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(coco, Me esters; process for the prepn. of stanol esters)

IT **Sterols**

RL: SPN (Synthetic preparation); PREP (Preparation)

(esters; process for the prepn. of stanol esters)

IT Hydrogenation

Hydrogenation catalysts

Transesterification

Transesterification catalysts

(process for the prepn. of stanol esters)

IT **Rape oil**
Tall oil
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for the prepn. of stanol esters)

IT **Fatty acids, reactions**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**rape-oil**, Me esters; process for the prepn. of stanol esters)

IT Fats and Glyceridic **oils**, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**vegetable**; process for the prepn. of stanol esters)

IT 124-41-4, Sodium methylate 141-52-6, Sodium ethylate 7440-05-3,
 Palladium, uses 7440-44-0, Carbon, uses
 RL: CAT (Catalyst use); USES (Uses)
 (process for the prepn. of stanol esters)

IT 83-46-5P 83-48-7P, **Stigmasterol** 474-62-4P,
Campesterol
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (process for the prepn. of stanol esters)

L46 ANSWER 19 OF 32 HCAPLUS COPYRIGHT 2002 ACS
 AN 1998:406253 HCAPLUS
 DN 129:80977
 TI Procedure for concentration of tocopherols and **sterols**
 IN **Schwarzer, Joerg**; Johannisbauer, Wilhelm; Bruegel, Brigitte;
 Nitsche, Michael
 PA Henkel K.-G.a.A., Germany
 SO Ger. Offen., 6 pp.
 CODEN: GWXXBX

DT **Patent**
 LA German
 IC ICM C07D311-72
 ICS C07J003-00
 CC 17-10 (Food and Feed Chemistry)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19652522	A1	19980618	DE 1996-19652522	19961217
	DE 19652522	C2	20001026		

AB A procedure for concg. tocopherols and/or free **sterols** comprises direct fractional **distn.** of tocopherol- and/or **sterol** -contg. mixts. with fats and/or fat derivs., e.g., steam **distillates of soybean oil, rape oil, or sunflower oil** using a thin film evaporator as the bottom evaporator. E.g., the steam **distillate** (contg. 6.2% tocopherol and 6.9% free **sterols**) in **soybean oil** refining was fractionated in a pilot column of 70 mm diam. packed with a textured material and a thin film evaporator to give a conc. contg. 13.9% tocopherol and 11.9% **sterols** and a **distillate** contg. no tocopherol and 0.1% **sterols**.

ST concn tocopherol **sterol**
 IT Concentration (process)
 (procedure for concn. of tocopherols and **sterols**)

IT **Rape oil**
Soybean oil
Sunflower oil
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
 (procedure for concn. of tocopherols and **sterols**)

IT **Sterols**
 Tocopherols
 RL: PUR (Purification or recovery); PREP (Preparation)
 (procedure for concn. of tocopherols and **sterols**)

L46 ANSWER 20 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:515711 HCAPLUS

DN 127:126694

TI Recovery of tocopherols

IN Hunt, Tracy K.; Schwarzer, Joerg

PA Henkel Corporation, USA

SO PCT Int. Appl., 21 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07D311-72

CC 63-8 (Pharmaceuticals)

Section cross-reference(s): 17

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9721697	A1	19970619	WO 1996-US19146	19961206
	W: BR, CA, CN, JP, MX, TR, UA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5703252	A	19971230	US 1996-753460	19961125
	CA 2240123	AA	19970619	CA 1996-2240123	19961206
	EP 866789	A1	19980930	EP 1996-945568	19961206
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE				
	CN 1204331	A	19990106	CN 1996-199004	19961206
	BR 9611932	A	19990302	BR 1996-11932	19961206
	JP 2002515861	T2	20020528	JP 1997-522074	19961206
PRAI	US 1995-8762P	P	19951213		
	US 1996-753460	A	19961125		
	WO 1996-US19146	W	19961206		

AB Starting from a mixt. contg. tocopherol, fats and/or fat derivs., more particularly **fatty acids**, and optionally **sterol** and/or **sterol** derivs., the free **fatty acids** present in the mixt. are esterified with an alc. and fatty glycerides are **transesterified** with an alc. in the presence of a zinc oxide and/or zinc hydroxide catalyst. After the esterifications, the excess lower alc. is **distd.** off from the reaction mixt. The **transesterification** catalyst and the **glycerol** present, if any, are removed and the **fatty acid** alkyl ester is **distd.** off from the mixt. **Distn.** of **fatty acid** alkyl esters can be accomplished with a packed column in sequence with a wiped film evaporator. The simultaneous recovery of tocopherol and **sterol** is possible. Tocopherols and **sterols** can be sepd. by the crystn. of **sterols** from a blend of org. solvents. Thus, tocopherols were sepd. from a **vegetable oil** deodorizer product contg. **fatty acids** and fatty glycerides and **sterols** by using the above procedure involving **MeOH**.

ST tocopherol purifn fatty glyceride **sterol**

IT Alcohols, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(C1-4; recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT **Transesterification**

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT Tocopherols

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT **Fatty acids**, biological studies

Glycerides, biological studies.

Sterols

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); OCCU (Occurrence); RACT (Reactant or reagent)

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT Metal alkoxides

RL: CAT (Catalyst use); USES (Uses)

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT Fats and Glyceridic **oils**, biological studies

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)

(**vegetable**; recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT 124-41-4, Sodium methoxide 1314-13-2, Zinc oxide (ZnO), uses 20427-58-1, Zinc hydroxide (Zn(OH)₂)

RL: CAT (Catalyst use); USES (Uses)

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT 64-17-5, **Ethanol**, reactions 67-56-1, **Methanol**, reactions 67-63-0, **IsoPropanol**, reactions 71-23-8, **1-Propanol**, reactions 71-36-3, **1-Butanol**, reactions 75-65-0, **tert-Butanol**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

IT 64-17-5, **Ethanol**, reactions 67-56-1, **Methanol**, reactions 67-63-0, **IsoPropanol**, reactions 71-23-8, **1-Propanol**, reactions 71-36-3, **1-Butanol**, reactions 75-65-0, **tert-Butanol**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(recovery of tocopherols from mixts. contg. **fatty acids** and/or **sterols**)

RN 64-17-5 HCAPLUS

CN Ethanol (9CI) (CA INDEX NAME)

H₃C-CH₂-OH

RN 67-56-1 HCAPLUS

CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

RN 67-63-0 HCAPLUS

CN 2-Propanol (9CI) (CA INDEX NAME)

OH
|
H₃C-CH-CH₃

RN 71-23-8 HCAPLUS

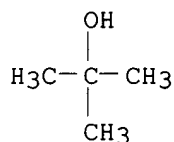
CN 1-Propanol (9CI) (CA INDEX NAME)

$$\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{OH}$$

RN 71-36-3 HCAPLUS
CN 1-Butanol (9CI) (CA INDEX NAME)

$$\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{OH}$$

RN 75-65-0 HCAPLUS
CN 2-Propanol, 2-methyl- (9CI) (CA INDEX NAME)



L46 ANSWER 21 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:498453 HCAPLUS

DN 122:248289

TI Recovery of tocopherols

IN Hunt, Tracy K.; Jeromin, Lutz; Johannisbauer, Wilhelm; **Gutsche, Bernhard**; Jordon, Volkmar; Wogatzki, Herbert

PA Henkel Corp., USA

SO PCT Int. Appl., 48 pp.

CODEN: PIXXD2

DT **Patent**

LA English

IC ICM C07D311-72

ICS C07C069-003

CC 63-4 (Pharmaceuticals)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9504731	A1	19950216	WO 1994-US8481	19940801
	W: BR, CA, CN, JP, RU, UA				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2168856	AA	19950216	CA 1994-2168856	19940801
	EP 712399	A1	19960522	EP 1994-924502	19940801
	EP 712399	B1	20011114		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IE, IT, LI, NL, PT, SE				
	BR 9407179	A	19960917	BR 1994-7179	19940801
	JP 09502701	T2	19970318	JP 1994-506442	19940801
	EP 992499	A2	20000412	EP 1999-118354	19940801
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE				
	EP 992500	A2	20000412	EP 1999-118355	19940801
	EP 992500	A3	20000426		
	EP 992500	B1	20020213		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE				
	AT 208769	E	20011115	AT 1994-924502	19940801
	AT 213239	E	20020215	AT 1999-118355	19940801
	US 5616735	A	19970401	US 1995-531366	19950920
	US 5646311	A	19970708	US 1996-654483	19960528
	US 5670669	A	19970923	US 1996-654441	19960528
PRAI	US 1993-103628	A	19930806		
	US 1994-180592	A	19940113		
	EP 1994-924502	A3	19940801		

WO 1994-US8481 W 19940801

US 1995-531366 A3 19950920

- AB Starting from a mixt. contg. tocopherol, fats and/or fat derivs., more particularly **fatty acids**, and optionally **sterol** and/or **sterol** derivs., the free **fatty acids** present in the mixt. are esterified with an alc. The mixt. is then **transesterified** with an alc. in the presence of a basic catalyst. After the **transesterification**, the excess lower alc. is **distsd.** off from the reaction mixt. The **transesterification** catalyst and the **glycerol** present, if any, are removed and the **fatty acid** alkyl ester is **distsd.** off from the mixt. **Distn.** of **fatty acid** alkyl esters can be accomplished with a packed column in sequence with a wiped film evaporator. The simultaneous recovery of tocopherol and **sterol** is possible. Tocopherols and **sterols** can be sepd. by the crystn. of **sterols** from a blend of org. solvents.
- ST tocopherol recovery
- IT Crystallization
Transesterification
 (recovery of tocopherols)
- IT Aldehydes, uses
 Alkanes, uses
 Esters, uses
 Ketones, uses
 Ligroine
 RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (recovery of tocopherols)
- IT Tocopherols
 RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
 (recovery of tocopherols)
- IT Alcohols, reactions
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process)
 (recovery of tocopherols)
- IT **Fatty acids**, processes
 RL: REM (Removal or disposal); PROC (Process)
 (recovery of tocopherols)
- IT **Steroids, processes**
 RL: REM (Removal or disposal); PROC (Process)
 (**hydroxy**, recovery of tocopherols)
- IT 64-18-6, Formic acid, uses 64-19-7, Acetic acid, uses **67-56-1**, **Methanol**, uses **67-63-0**, Isopropanol, uses 67-64-1, Acetone, uses 75-05-8, Acetonitrile, uses 78-93-3, MEK, uses 100-51-6, Benzyl alcohol, uses 108-87-2, Methylcyclohexane 108-88-3, Toluene, uses 109-94-4, Ethyl formate 109-99-9, THF, uses 110-54-3, Hexane, uses 110-82-7, Cyclohexane, uses 111-65-9, Octane, uses 141-78-6, Ethyl acetate, uses 142-82-5, Heptane, uses 1300-21-6, Dichloroethane 25265-68-3, Methyltetrahydrofuran 29222-48-8, Trimethylpentane
 RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (recovery of tocopherols)
- IT 104-76-7, 2-Ethylhexanol
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process)
 (recovery of tocopherols)
- IT **67-56-1**, **Methanol**, uses **67-63-0**, Isopropanol, uses
 RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical

process); PROC (Process); USES (Uses)
(recovery of tocopherols)

RN 67-56-1 HCAPLUS

CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

RN 67-63-0 HCAPLUS

CN 2-Propanol (9CI) (CA INDEX NAME)

OH
|
H₃C-CH-CH₃

L46 ANSWER 22 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1994:280367 HCAPLUS

DN 120:280367

TI Separation of tocopherol and **sterols** from mixts. with fats
and/or **fatty acids**.

IN Jeromin, Lutz; Johannisbauer, Wilhelm; **Gutsche, Bernhard**;
Jordan, Volkmar; Wogatzki, Herbert

PA Henkel K.-G.a.A., Germany

SO Ger. Offen., 4 pp.

CODEN: GWXXBX

DT **Patent**

LA German

IC ICM C07D311-72

ICA B01J031-08; B01J031-02; A23L003-3544; A61K007-00; A61K031-355; A61K031-56;
C09K015-06; C09D007-12; C09D191-00

CC 63-8 (Pharmaceuticals)

Section cross-reference(s): 30, 32, 45

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4228476	A1	19940303	DE 1992-4228476	19920827
	DE 4228476	C2	20020502		
	WO 9405650	A1	19940317	WO 1993-EP2207	19930818
	W: BR, CA, JP, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 656894	A1	19950614	EP 1993-919091	19930818
	EP 656894	B1	19980225		
	EP 656894	B2	20020612		
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE				
	JP 08500598	T2	19960123	JP 1993-506799	19930818
	AT 163416	E	19980315	AT 1993-919091	19930818
	ES 2112427	T3	19980401	ES 1993-919091	19930818
	BR 9306967	A	19990112	BR 1993-6967	19930818
	US 5627289	A	19970506	US 1995-387933	19950227
PRAI	DE 1992-4228476	A	19920827		
	WO 1993-EP2207	W	19930818		

AB Title mixts., such as **soybean oil** steam
distillate or **tall oil**, are treated with a
lower alc., preferably **MeOH**, for esterification of free
fatty acids, followed by **transesterification**,
using a basic catalyst. The excess lower alc. is **distd.** off,
and the catalyst and **glycerol** are removed by washing. After
removal of the **fatty acid** alkyl esters by
distn., the tocopherols and **sterols** are isolated by

known methods. Esterification of the free **fatty acids** in the 1st stage is preferably carried out in the presence of strongly-acid ion exchangers.

ST tocopherol **sterol** sepn fat **fatty acid**;
soybean oil distillate tocopherol
sterol sepn

IT Tocopherols
RL: PROC (Process)
(sepn. of, from mixts. with fats and **fatty acids**)

IT **Soybean oil**
RL: BIOL (Biological study)
(steam **distillate** of, tocopherols and **sterols** sepn. from)

IT **Tall oil**
RL: BIOL (Biological study)
(tocopherols and **sterols** sepn. from)

IT **Steroids, preparation**
RL: PREP (Preparation)
(**hydroxy**, sepn. of, from mixts. with fats and **fatty acids**)

L46 ANSWER 23 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1993:624818 HCAPLUS

DN 119:224818

TI Use of ester-bridged fatty side chains to suppress caloric availability of fat compounds

IN Klemann, Lawrence P.; Finley, John W.

PA Nabisco, Inc., USA

SO U.S., 11 pp.

CODEN: USXXAM

DT **Patent**

LA English

IC ICM A23L001-29

NCL 426531000

CC 17-9 (Food and Feed Chemistry)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5219604	A	19930615	US 1991-654863	19910213

OS MARPAT 119:224818

AB Methods of forming and using inter- and intra-mol. ester bridges of $O(CO)(CH_2)_n(CO)O$ ($n=1-8$) between fatty side chains attached to fat compds. are disclosed. The bridges are formed by reacting dibasic carboxylic acids or their derivs. with hydroxy functions situated on the side chains of the fatty compds. The structural modification results in reducing the availability of the calories of the fatty compds. Prepn. of bis-(lactoyl-distearin) adipate by interesterification of tristearin with (S)-(-)-Me lactate, followed by reaction of the resultant 1,2- and 1,3-distearin with adipoyl chloride was demonstrated. Use of the low-cal fatty compds. thus prepd. for prepn. of a variety of foods was also demonstrated.

ST fat ester bridge calorie redn; lactoyl distearin low calorie food

IT Cream substitutes
(for filling, fatty compds. contg. ester-bridged fatty side chains for)

IT Amides, reactions
RL: PREP (Preparation)
(hydroxy fatty acyl group-contg., dimerization by esterification of, in fat substitute prepn.)

IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(milk fat, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)

IT **Transesterification**

- (of fat contg. hydroxyfatty acids, for fat substitute prepn.)
- IT Glycerides, biological studies
RL: PREP (Preparation)
(with hydroxy group-contg. **fatty acids**,
dimerization by esterification of, in fat substitute prepn.)
- IT Salad dressings
(Italian, low-calorie, fatty compds. contg. ester-bridged fatty side
chains for)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(babassu-oil, fat contg. side chains based on, ester bridging in, fat
substitutes in relation to)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(canola-oil, fat contg. side chains based on, ester bridging in, fat
substitutes in relation to)
- IT Potato
(chips, low-calorie, fatty compds. contg. ester-bridged fatty side
chains for)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(coco, fat contg. side chains based on, ester bridging in, fat
substitutes in relation to)
- IT Bakery products
(cookies, low-calorie, fatty compds. contg. ester-bridged fatty side
chains for)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(corn-oil, fat contg. side chains based on, ester bridging in, fat
substitutes in relation to)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(cottonseed-oil, fat contg. side chains based on, ester bridging in,
fat substitutes in relation to)
- IT Bakery products
(crackers, low-calorie, fatty compds. contg. ester-bridged fatty side
chains for)
- IT Glycerides, biological studies
RL: PREP (Preparation)
(di-, with hydroxy group-contg. **fatty acids**,
dimerization by esterification of, in fat substitute prepn.)
- IT Carboxylic acids, esters
RL: BIOL (Biological study)
(di-, esters, with hydroxy group-contg. **fatty acids**
of fat, as fat substitutes)
- IT Glycols, esters
RL: PREP (Preparation)
(diesters, with hydroxy group-contg. **fatty acids**,
dimerization by esterification of, in fat substitute prepn.)
- IT Amino acids, esters
Polyoxyalkylenes, compounds
RL: PREP (Preparation)
(esters, with hydroxy group-contg. **fatty acids**,
dimerization by esterification of, in fat substitute prepn.)
- IT Ethers, reactions
RL: PREP (Preparation)
(glyceryl, hydroxyfatty acid-contg., dimerization by esterification of,
fat substitute prepn. by)
- IT **Steroids, compounds**
RL: PREP (Preparation)
(**hydroxy**, esters, with **hydroxy** group-contg.
fatty acids, dimerization by esterification of, in
fat substitute prepn.)

- IT **Fatty acids, reactions**
RL: PREP (Preparation)
(jojoba, esters, dimerization by esterification of, for fat substitutes prepn.)
- IT Dairy products
Food
Margarine
(low-calorie, fatty compds. contg. ester-bridged fatty side chains for)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(lupine-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(marine-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT Glycerides, biological studies
RL: PREP (Preparation)
(mono-, with hydroxy group-contg. **fatty acids**, dimerization by esterification of, in fat substitute prepn.)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(mustard-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(nasturtium-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT Alcohols, esters
RL: PREP (Preparation)
(neo-, esters, with hydroxy group-contg. **fatty acids**, dimerization by esterification of, in fat substitute prepn.)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(olive-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(palm kernel-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(palm-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(peanut-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT Cheese substitutes
(pimento, low-calorie, fatty compds. contg. ester-bridged fatty side chains for)
- IT Carboxylic acids, esters
RL: PREP (Preparation)
(poly-, esters, with hydroxy group-contg. **fatty acids**, dimerization by esterification of, in fat substitute prepn.)
- IT Alcohols, esters
RL: PREP (Preparation)
(polyhydric, esters, with hydroxy group-contg. **fatty acids**, dimerization by esterification of, in fat substitute prepn.)
- IT **Fatty acids, biological studies**
RL: BIOL (Biological study)
(rape-oil, low-erucic, fats contg. side chains

- based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(rice bran-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(safflower-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT Meat
(sausage, Italian, low-calorie, fatty compds. contg. ester-bridged fatty side chains for)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(sesame-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(soya, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT **Fatty acids**, biological studies
RL: BIOL (Biological study)
(sunflower-oil, fat contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT Esters, reactions
RL: PREP (Preparation)
(thio, hydroxy fatty acyl group-contg., dimerization by esterification of, in fat substitute prepn.)
- IT 110-15-6D, Succinic acid, esters with fatty side chains of fat
110-94-1D, Pentanedioic acid, esters with fatty side chains of fat
111-16-0D, Pimelic acid, esters with fatty side chains of fat 111-20-6D, Decanedioic acid, esters with fatty side chains of fat 123-99-9D, Azelaic acid, esters with fatty side chains of fat 124-04-9D, Hexanedioic acid, esters with fatty side chains of fat 141-82-2D, Propanedioic acid, esters with fatty side chains of fat 505-48-6D, Octanedioic acid, esters with fatty side chains of fat
RL: BIOL (Biological study)
(as fat substitutes)
- IT 13487-46-2
RL: BIOL (Biological study)
(contg. side chains based on, ester bridging in, fat substitutes in relation to)
- IT 9002-89-5D, esters with hydroxy group-contg. **fatty acids**
RL: BIOL (Biological study)
(dimerization by esterification of, in fat substitute prepn.)
- IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-Octadecadienoic acid (Z,Z)-, biological studies 64-17-5, **Ethanol**, biological studies 64-19-7, Acetic acid, biological studies 71-23-8, 1-**Propanol**, biological studies 71-36-3, 1-**Butanol**, biological studies 79-09-4, Propionic acid, biological studies 107-92-6, Butyric acid, biological studies 111-27-3, 1-Hexanol, biological studies 111-87-5, 1-Octanol, biological studies 112-05-0, Pelargonic acid 112-30-1, 1-Decanol 112-37-8, Undecanoic acid 112-42-5, 1-Undecanol 112-53-8, 1-Dodecanol 112-72-1, 1-Tetradecanol 112-80-1, Oleic acid, biological studies 112-85-6, Docosanoic acid 112-86-7, Erucic acid 112-92-5, 1-Octadecanol 124-07-2, Octanoic acid, biological studies 142-62-1, Caproic acid, biological studies 143-07-7, Dodecanoic acid, biological studies 143-08-8, 1-Nonanol 143-28-2 1334-48-5, Capric acid 373-49-9 463-40-1, Linolenic acid 506-30-9, Eicosanoic acid 506-32-1, Arachidonic acid 506-33-2, Brassidic acid 506-37-6, Nervonic acid 506-43-4 506-44-5 506-46-7, Cerotic acid 506-48-9, Montanic acid 506-50-3, Melissic acid

506-51-4, 1-Tetracosanol 506-52-5, 1-Hexacosanol 544-63-8,
Tetradecanoic acid, biological studies 557-59-5, Lignoceric acid
557-61-9, 1-Octacosanol 593-50-0, 1-Triacontanol 629-96-9, 1-Eicosanol
629-98-1 661-19-8, 1-Docosanol 693-72-1, Vaccenic acid 4494-15-9,
9,11,13-Octadecatrien-1-ol 5634-26-4 10378-01-5 13296-76-9,
Eleostearic acid 32839-18-2, Docosaheptaenoic acid 32839-30-8,
Eicosapentaenoic acid 32839-34-2, Docosapentaenoic acid 36653-82-4,
1-Hexadecanol 50995-29-4 57716-88-8 81276-10-0, Docosatetraenoic
acid 87291-25-6, Eicosapentaen-1-ol 115111-97-2, Docosaheptaen-1-ol
123739-44-6, Docosapentaen-1-ol 150908-97-7, Docosaoctaen-1-ol

RL: BIOL (Biological study)

(fat contg. side chains based on, ester bridging in, fat substitutes in
relation to)

IT 50-21-5D, esters with dicarboxylic acids 141-22-0D, Ricinoleic acid,
esters with dicarboxylic acids 540-11-4D, Ricinoleyl alcohol, esters
with dicarboxylic acids

RL: BIOL (Biological study)

(fat substitutes contg.)

IT 50-99-7D, D-Glucose, polyesters 57-50-1D, polyesters 512-69-6D,
polyesters 25618-55-7D, esters

RL: BIOL (Biological study)

(hydroxyfatty acid-contg., dimerization by esterification of, fat
substitute prepn. by)

IT 66753-01-3P 150516-68-0P 150516-69-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(prepn. and reaction of, in fat substitute prepn.)

IT 111-50-2DP, Adipoyl chloride, reaction products with lactoyl-distearin
150516-62-4P 150516-63-5P 150516-64-6P 150516-65-7P 150516-66-8P
150516-67-9P

RL: PREP (Preparation)

(prepn. of, as fat substitute)

IT 9082-00-2DP, esters

RL: PREP (Preparation)

(prepn. of, as fat substitutes)

IT 57-11-4, Octadecanoic acid, reactions 77-99-6 111-19-3, Sebacoyl
chloride 555-43-1, Tristearin 27871-49-4, (S)-(-)-Methyl lactate

RL: RCT (Reactant)

(reaction of, in fat substitute prepn.)

IT 64-17-5, Ethanol, biological studies 71-23-8,

1-Propanol, biological studies 71-36-3, 1-

Butanol, biological studies

RL: BIOL (Biological study)

(fat contg. side chains based on, ester bridging in, fat substitutes in
relation to)

RN 64-17-5 HCAPLUS

CN Ethanol (9CI) (CA INDEX NAME)

H₃C-CH₂-OH

RN 71-23-8 HCAPLUS

CN 1-Propanol (9CI) (CA INDEX NAME)

H₃C-CH₂-CH₂-OH

RN 71-36-3 HCAPLUS

CN 1-Butanol (9CI) (CA INDEX NAME)

H₃C-CH₂-CH₂-CH₂-OH

L46 ANSWER 24 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1993:32946 HCAPLUS

DN 118:32946

TI A substance (.beta.-sitostanol **fatty acid** esters) for lowering high **cholesterol** level in serum and a method for preparing the same

IN Miettinen, Tatu; Vanhanen, Hannu; Wester, Ingmar

PA Raison Margariini Oy, Finland

SO PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DT **Patent**

LA English

IC ICM C07J009-00

ICS A61K031-575

CC 1-10 (Pharmacology)

Section cross-reference(s): 17

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9219640	A1	19921112	WO 1991-FI139	19910503
	W: AU, BG, CA, FI, HU, JP, MC,			NO, PL, RO, SU, US	
	RW: AT, BE, CH, DE, DK, ES, FR,			GB, GR, IT, LU, NL, SE	
	CA 2102112	AA	19921104	CA 1991-2102112	19910503
	AU 9177505	A1	19921221	AU 1991-77505	19910503
	AU 664827	B2	19951207		
	HU 65318	A2	19940502	HU 1993-3111	19910503
	HU 217625	B	20000328		
	EP 594612	A1	19940504	EP 1991-908435	19910503
	EP 594612	B1	19970806		
	R: AT, BE, DE, DK, FR, GB, IT, LU, NL, SE				
	JP 06506909	T2	19940804	JP 1991-506770	19910503
	PL 166991	B1	19950731	PL 1991-301114	19910503
	AT 156489	E	19970815	AT 1991-908435	19910503
	RU 2095367	C1	19971110	RU 1993-58424	19910503
	NO 9303966	A	19931102	NO 1993-3966	19931102
	FI 98730	B	19970430	FI 1993-4869	19931103
	FI 98730	C	19970811		
	US 5502045	A	19960326	US 1993-140085	19931122
	US 5958913	A	19990928	US 1996-744009	19961105
	FI 9604951	A	19961211	FI 1996-4951	19961211
	US 6174560	B1	20010116	US 1998-190598	19981112
	FI 2001001891	A	20010926	FI 2001-1891	20010926
PRAI	CA 1991-2102112	A	19910503		
	EP 1991-908435	A	19910503		
	WO 1991-FI139		19910503		
	FI 1993-4869	A	19931103		
	US 1993-140085	A2	19931122		
	US 1995-508623	B2	19950728		
	US 1996-744009	A3	19961105		

AB .beta.-Sitostanol (I) **fatty acid** esters, serving as both **antihypercholesterolemics** and fat substitutes, are prepd. for use in foods. For example, 6 kg I and 8.6 kg **rapeseed oil** Me ester mixt. were dried by heating at 90-120.degree. and 5-15 mmHg for 1 h, followed by addn. of 12 g NaOEt and reaction for 2 h. Addn. of H₂O, phase sepn., and vacuum drying gave I **rapeseed oil fatty acid** ester (II) with 98% conversion. II was incorporated at 3, 6, and 13% in **rapeseed oil** prior to steam blowing, and the resultant fat mixt. was used at 65% in

mayonnaise without perceivable changes in sense properties. In expts. on unspecified subjects, addn. of II to dietary **rapeseed oil** reduced serum levels of 3 plant **sterols** and both total and LDL **cholesterol** more effectively than did addn. of I itself.

- ST sitostanol **fatty acid** ester
antihypercholesterolemic; fat substitute sitostanol fatty ester;
 food additive sitostanol fatty ester; rapeseed fatty ester sitostanol
antihypercholesterolemic
- IT Anticholesteremics and Hypolipemics
 Fat substitutes
 RL: BIOL (Biological study)
 (.beta.-sitostanol **fatty-acid** esters)
- IT Butter
 Food
 Margarine
 Mayonnaise
 Salad dressings
 Fats and Glyceridic oils
 Shortening
 RL: BIOL (Biological study)
 (.beta.-sitostanol **fatty-acid** esters for addn. to)
- IT **Fatty acids**, esters
 RL: RCT (Reactant)
 (**rape-oil**, Me esters, **transesterification**
 of, with .beta.-sitostanol)
- IT **Fatty acids**, esters
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (**rape-oil**, esters, with .beta.-sitostanol, prepn.
 of, as **antihypercholesterolemic**s)
- IT 57-88-5, **Cholesterol**, properties
 RL: PRP (Properties)
 (dietary absorption of, effect of .beta.-sitostanol **fatty acid** esters in **rapeseed oil** on)
- IT 83-46-5, .beta.-**Sitosterol** 474-62-4, **Campesterol**
 RL: BIOL (Biological study)
 (in serum, effect of dietary .beta.-sitostanol and .beta.-sitostanol **fatty acid** esters on)
- IT 83-45-4DP, .beta.-Sitostanol, **fatty acid** esters
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, as **antihypercholesterolemic**s and fat substitutes)
- IT 83-45-4, .beta.-Sitostanol
 RL: RCT (Reactant)
 (**transesterification** of, with **fatty acid**
 esters, and effect of, on serum plant **sterol** levels)

L46 ANSWER 25 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1990:593813 HCAPLUS

DN 113:193813

TI Production of polyol polyesters having reduced color content

IN Gibson, Michael S.

PA Procter and Gamble Co., USA

SO U.S., 5 pp.

CODEN: USXXAM

DT **Patent**

LA English

IC ICM C07H001-00

ICS C07H013-06; C07C067-03; C07C067-60

NCL 536119000

CC 44-4 (Industrial Carbohydrates)

Section cross-reference(s): 1, 17, 45, 46

FAN.CNT 1

PATENT NO.

KIND DATE

APPLICATION NO. DATE

PI US 4942228 A 19900717 US 1986-860285 19860506

OS MARPAT 113:193813

AB Polyol esters of **fatty acids** with low color, useful as emulsifiers, low calorie fats, and pharmaceuticals for inhibiting the adsorption of **cholesterol** (no data), are prep'd. by base-catalyzed **transesterification** of polyols selected from mono-, disaccharides and sugar alcs. with lower alkyl esters of **fatty acids** contg. .gtoreq.0.1% unsatn. that are pretreated 10-120 min at 60-140.degree. with (RO)nM (R = C1-5 alkyl, M = alkali or alk.-earth metal or Al, n = valence of metal). Thus, **fatty acid** Me esters contg. .apprx.20% unsatn. prep'd. by methanolysis of partially hydrogenated, refined **soybean oil** (an iodine value of 80) are stirred and heated 1 h at 90.degree. with powd. MeOK (1% of the Me esters). A highly colored solid ppt. was removed by centrifugation, and the centrifuged Me esters, clear but highly colored, was **distd.** at 180.degree. and 1 mm Hg to give near water white Me esters, which were **transesterified** with sucrose in **MeOH** in the presence of KOH and K₂CO₃ to give esters with an UV absorbance value of 0.038 (440 nm), vs. 0.062 for esters prep'd. from untreated **fatty acid** Me esters.

ST sucrose fatty ester colorless; **transesterification** fatty ester sucrose; alkoxide treatment fatty ester; potassium methoxide decolorization fatty ester; soya fatty ester decolorization ethoxide

IT Decolorizing agents
(metal alkoxides, for esters of unsatd. fatty alcs. in manuf. of carbohydrate esters)

IT Anticholesteremics and Hypolipemics
Emulsifying agents
(mono- or disaccharide and sugar alc. **fatty acid** esters for, with reduced color content)

IT Fats, preparation
RL: PREP (Preparation)
(prepn. of low-calorie, by **transesterification** of mono- and disaccharides and sugars with **fatty acid** lower alkyl esters, with reduced color content)

IT Alcohols, compounds
RL: PREP (Preparation)
(C1-5, alk. earth salts, decolorization by, of (un)conjugated unsatn.-contg. **fatty acid** esters, in prepn. of carbohydrate **fatty acid** esters)

IT Alcohols, compounds
RL: PREP (Preparation)
(C1-5, alkali metal salts, decolorization by, of (un)conjugated unsatn.-contg. **fatty acid** esters, in prepn. of carbohydrate **fatty acid** esters)

IT Alcohols, compounds
RL: PREP (Preparation)
(C1-5, aluminum salts, decolorization by, of (un)conjugated unsatn.-contg. **fatty acid** esters, in prepn. of carbohydrate **fatty acid** esters)

IT Carbohydrates and Sugars, esters
RL: PREP (Preparation)
(esters, with **fatty acids**, prepn. of, reduced color content in)

IT **Fatty acids**, esters
RL: PROC (Process)
(soya, hydrogenated, Me esters, potassium methoxide decolorization of, in manuf. of sucrose esters)

IT 7429-90-5
RL: USES (Uses)
(alcohols, C1-5, aluminum salts, decolorization by, of (un)conjugated unsatn.-contg. **fatty acid** esters, in prepn. of

- carbohydrate **fatty acid** esters)
- IT 124-41-4
RL: USES (Uses)
(decolorization by, of partially hydrogenated **soybean oil fatty acid** Me esters, in prepn. of sucrose esters)
- IT 57-50-1DP, partially hydrogenated **soybean oil fatty acid** esters
RL: PREP (Preparation)
(prepn. of, reduced color content in)
- L46 ANSWER 26 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN 1990:503371 HCAPLUS
DN 113:103371
TI Recovery of carotenoids, tocopherols, tocotrienols and **sterols** from esterified **palm oil**
IN Goh, Swee Hock; Kam, Toh Seok; Choo, Yen May; Ong, Augustine Soon Hock
PA Institut Penyelidikan Minyak Kelapa Sawit Malaysia, Malay.; University of Malaya
SO Brit. UK Pat. Appl., 21 pp.
CODEN: BAXXDU
DT **Patent**
LA English
IC ICM C07C175-00
ICS C07D311-72; C07J009-00
CC 63-4 (Pharmaceuticals)
Section cross-reference(s): 17
FAN.CNT 1
- | | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---------------|------|----------|-----------------|----------|
| PI | GB 2218989 | A1 | 19891129 | GB 1988-29427 | 19881215 |
| | GB 2218989 | B2 | 19910904 | | |
| PRAI | GB 1987-29232 | | 19871215 | | |
- AB A method for the isolation of the minor nonglyceride components of **palm oil** or similar **vegetable oil** contg. free **fatty acid** and nonglyceride components similar to that of **palm oil** comprises: (a) esterifying the free **fatty acid** component of the **oil** with .gtoreq.1 monohydric alcs. to form an esterified **oil** with a very low free **fatty acid** content; (b) converting the glycerides into monoesters by **transesterification** using .gtoreq.1 monohydric alc.; (c) adsorbing the nonglyceride components onto a selective adsorbent to sep. them from the esters; and (d) desorbing the nonglyceride components from the adsorbent. The adsorbent is preferably activated alumina, activated C, or silica gel. By the method, carotenes, **sterols**, tocopherols and other nonglyceride components can be isolated. Crude **palm oil** Me ester was dissolved in **MeOH** and applied to a C18 reversed-phase column. The esters were eluted with **MeOH**, and then carotenoids were eluted with C6H14: **MeOH** (98:2 vol./vol.) or CHCl3.
- ST carotenoid isolation **palm oil**; **sterol** isolation **palm oil**; tocopherol isolation **palm oil**; tocotrienol isolation **palm oil**
- IT *Candida rugosa*
(enzyme of, in **vegetable oil** esterification for nonglyceride component isolation)
- IT Silica gel, biological studies
RL: BIOL (Biological study)
(in nonglyceride component sepn. from esterified **vegetable oils**)
- IT Carotenes and Carotenoids, biological studies
Tocopherols
RL: BIOL (Biological study)

- (isolation of, from esterified **vegetable oils**, by chromatog.)
- IT Chromatography, column and liquid
(nonglyceride component sepn. from esterified **vegetable oils** by)
- IT Ion exchangers
(acidic, sulfate-type, in **vegetable oil** esterification for nonglyceride component isolation)
- IT Esterification
(biochem., of **vegetable oils**, in nonglyceride component isolation)
- IT Chromatography, column and liquid
(high-performance, nonglyceride component sepn. from esterified **vegetable oils** by)
- IT **Steroids, biological studies**
RL: BIOL (Biological study)
(**hydroxy**, isolation of, from esterified **vegetable oils**, by chromatog.)
- IT **Palm oil**
RL: BIOL (Biological study)
(interesterified, nonglyceride component chromatog. isolation from)
- IT **Fatty acids, esters**
RL: PROC (Process)
(**palm-oil**, esters, sepn. of, by chromatog.)
- IT **Palm oil**
RL: BIOL (Biological study)
(**transesterified**, nonglyceride component chromatog. isolation from)
- IT **Oils, glyceridic**
RL: BIOL (Biological study)
(**vegetable**, interesterified, nonglyceride component chromatog. isolation from)
- IT **Oils, glyceridic**
RL: BIOL (Biological study)
(**vegetable, transesterified**, nonglyceride component chromatog. isolation from)
- IT **Fatty acids, esters**
RL: PROC (Process)
(**vegetable-oil**, esters, sepn. of, by chromatog.)
- IT 7440-44-0, Carbon, uses and miscellaneous
RL: USES (Uses)
(activated, in nonglyceride component sepn. from esterified **vegetable oils**)
- IT 1344-28-1, Alumina, biological studies
RL: BIOL (Biological study)
(in nonglyceride component sepn. from esterified **vegetable oils**)
- IT 7664-93-9D, Sulfuric acid, alkali metal salts
RL: BIOL (Biological study)
(in **vegetable oil** esterification for nonglyceride component isolation)
- IT 6829-55-6
RL: PROC (Process)
(isolation of, from esterified **vegetable oils**, by chromatog.)
- L46 ANSWER 27 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN 1990:51289 HCAPLUS
DN 112:51289
TI Immobilization of lipase on **fatty acid**-treated insoluble carrier
IN Yokomichi, Hideki; Yasumasu, Takeshi; Nakamura, Kazuhiro; Kawahara, Yoshiharu

PA Kao Corp., Japan
 SO Eur. Pat. Appl., 22 pp.
 CODEN: EPXXDW
 DT **Patent**
 LA English
 IC ICM C12N011-00
 ICS C12N009-16; C12N009-20
 CC 7-7 (Enzymes)
 Section cross-reference(s): 16
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 320132	A2	19890614	EP 1988-310883	19881118
	EP 320132	A3	19900328		
	EP 320132	B1	19950621		
	R: CH, DE, ES, GB, LI, NL				
	JP 01153090	A2	19890615	JP 1987-311549	19871209
	JP 07010231	B4	19950208		
	JP 01153091	A2	19890615	JP 1987-311550	19871209
	JP 07010232	B4	19950208		
	JP 01153097	A2	19890615	JP 1987-311551	19871209
	JP 06065312	B4	19940824		
	JP 01174384	A2	19890710	JP 1987-335854	19871228
	JP 07012310	B4	19950215		
	ES 2073405	T3	19950816	ES 1988-310883	19881118
PRAI	JP 1987-311549		19871209		
	JP 1987-311550		19871209		
	JP 1987-311551		19871209		
	JP 1987-335854		19871228		

AB Lipases, which may be used for esterification or interesterification, are immobilized on an insol. carrier that has been pretreated with **fatty acids** or their derivs. Rhizopus japonicus lipase was immobilized on a weak anion exchange resin (phenol/formaldehyde resin: Duolite A-568) pretreated with oleic acid with 96% recovery of activity. A mixt. of **glycerol** and oleic acid was incubated with the immobilized enzyme. After 3 h the esterification ratio was 87.0%. With lipase immobilized on an untreated carrier, there was 66.2% recovery of activity and 11.0% esterification ratio. When incubated with **palm oil** and stearic acid, the immobilized enzyme produced .apprx.2-fold more diglycerides than the control.

ST immobilization lipase interesterification esterification enhancement

IT Phosphatidylcholines, uses and miscellaneous

Phosphatidylethanolamines

Phosphatidylinositols

Phosphatidylserines

RL: USES (Uses)

(insol. carrier pretreated with, immobilization of lipase on)

IT **Fatty acids**, biological studies

RL: BIOL (Biological study)

(insol. carrier pretreated with, immobilization of lipases on)

IT **Palm oil**

RL: BIOL (Biological study)

(interesterification of stearic acid and, immobilized lipase for)

IT Esterification

Transesterification

(lipases immobilized on **fatty acid**- or

fatty acid deriv.-treated matrixes for)

IT Immobilization, biochemical

(of lipases on matrixes treated with **fatty acids** or

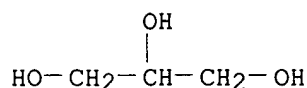
derivs, improved recovery and enhanced esterification and

interesterification with)

IT Zeolites, biological studies

RL: BIOL (Biological study)

- (5A, **fatty acid-** or **fatty acid**
ester-treated, immobilization of lipases on)
- IT Glycerides, preparation
RL: PREP (Preparation)
(di-, prepn. of, from **palm oil** and stearic acid,
immobilized lipase for)
- IT **Fatty acids**, esters
RL: PREP (Preparation)
(long-chain, esters, with lower mono- or polyhydric alcs., prepn. of,
immobilized lipase for)
- IT Lecithins
RL: BIOL (Biological study)
(soya, insol. carrier pretreated with, immobilization of lipases on)
- IT 1344-95-2 7631-86-9, Silica, biological studies 9003-35-4, Duolite
ES-562 9012-76-4, Chitosan 37251-30-2, Duolite A7 55914-96-0, Diaion
WA30 73560-83-5, Duolite A 368 76363-81-0, Neobead D 83271-12-9,
Duolite S-762 91931-88-3, Duolite ES-771
RL: BIOL (Biological study)
(**fatty acid-** or **fatty acid**,
ester-treated, immobilization of lipases on)
- IT 9001-62-1P, Lipase 9013-93-8P, Phospholipase 9026-00-0P,
Cholesterol esterase 9031-54-3P, Sphingomyelinase
RL: PREP (Preparation)
(immobilization of, on **fatty acid**-treated carrier,
improved yield and activity in relation to)
- IT 57-55-6, Propylene glycol, biological studies 60-33-3, Linoleic acid,
biological studies 111-62-6, Ethyl oleate 112-80-1, Oleic acid,
biological studies 122-32-7, Oleic triglyceride 141-22-0, Ricinoleic
acid 143-07-7, Lauric acid, biological studies 1338-43-8, Sorbitan
monooleate 25496-72-4 25496-92-8, Sucrose monooleate 25637-84-7
30399-84-9, Isostearic acid 110885-82-0
RL: BIOL (Biological study)
(insol. carrier pretreated with, immobilization of lipases on)
- IT 57-11-4, Stearic acid, biological studies
RL: BIOL (Biological study)
(interesterification of **palm oil** and, lipase
immobilized on **fatty acid**-treated matrix for)
- IT 56-81-5, **Glycerol**, biological studies
RL: RCT (Reactant)
(reaction of, with higher **fatty acids**, immobilized
lipase for)
- IT 1335-30-4
RL: BIOL (Biological study)
(zeolites, 5A, **fatty acid-** or **fatty**
acid ester-treated, immobilization of lipases on)
- IT 56-81-5, **Glycerol**, biological studies
RL: RCT (Reactant)
(reaction of, with higher **fatty acids**, immobilized
lipase for)
- RN 56-81-5 HCAPLUS
CN 1,2,3-Propanetriol (9CI) (CA INDEX NAME)



IN Willemse, Gerardus Wilhelmus Marie
 PA Unilever N. V., Neth.; Unilever PLC
 SO Eur. Pat. Appl., 7 pp.
 CODEN: EPXXDW

DT **Patent**

LA English

IC ICM C07H013-06

CC 33-6 (Carbohydrates)

Section cross-reference(s): 46

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 320043	A2	19890614	EP 1988-202698	19881128
	EP 320043	A3	19910724		
	EP 320043	B1	19940413		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, NL, SE				
	AT 104307	E	19940415	AT 1988-202698	19881128
	CA 1329806	A1	19940524	CA 1988-584997	19881205
	AU 8826672	A1	19890615	AU 1988-26672	19881207
	AU 609230	B2	19910426		
	JP 01294651	A2	19891128	JP 1988-310302	19881209
	ZA 8809241	A	19900829	ZA 1988-9241	19881209
	US 5144023	A	19920901	US 1991-794829	19911118
PRAI	GB 1987-28960		19871211		
	GB 1988-21584		19880915		
	EP 1988-202698		19881128		
	US 1988-278693		19881201		

AB A process for the synthesis of polyol **fatty acid** esters involves (1) prepn. of a substantially solvent-free reaction mixt. of a polyol and/or a **fatty acid** oligoester thereof, a **fatty acid** lower-alkyl ester, a **transesterification** catalyst, and optionally an emulsifier by forming a mixt. of compds. listed above, optionally a precursor of an emulsifier, and .gtoreq.1 solvent and homogenizing and desolvating the mixt. formed by spray-drying and (2) **transesterification** of the reactant mixt. The process is economically feasible on a tech. scale. The polyol **fatty acid** oligoesters are useful as emulsifying agents in foodstuffs and detergents and as drying **oils** in paint and varnish. The polyesters are suitable for low-calorie fat substitutes and as pharmaceuticals to take up fat-sol. substances (e.g. **cholesterol**) in the gastrointestinal tract. Thus, **fatty acid** Me ester derived from **soya bean oil fatty acids** was pumped from a supply vessel through a heat-exchanger at 145.degree. and a dynamic mixer at 60 kg/h. An aq. soln. prepd. by mixing a 70% sucrose soln. and a 50% KOH soln. (85:15 mixing ratio) was introduced sep. into the dynamic mixer at 8 kg/h. From the dynamic mixer the combined and mixed streams of **fatty acid** Me esters and sucrose/KOH soln. were fed to a spray-drying device and spray-dried to 0.08% H2O at 5 mbar. Subsequently **distd. coconut fatty acids** were added with vigorous stirring to the spray-dried mixt. at 60.degree. and atm. pressure. After post-drying the resulting mixt. under vacuum at .ltoreq.90.degree., the substantially solvent-free mixt. comprising **fatty acid** Me esters 90, soap 3, sucrose 7% including 2% potassium sucrate was esterified at 130-140.degree. and 120 mbar to 1 mbar. During the final 2 h the esterification was driven to completion using hexane to strip MeOH to give a mixt. contg. **fatty acid** Me esters 44.0, soap 4.5, sucrose **fatty acid** polyesters (>98% conversion) 46.0, and minor impurities 5.5%.

ST polyol **fatty acid** esters prepn emulsifier;
transesterification fatty acid ester polyol;
 spray drying **transesterification** reactant; sucrose
transesterification fatty acid ester

IT **Transesterification**
 (of polyols with **fatty acid esters**, spray drying of reactants in)
 IT Emulsifying agents
 (polyol **fatty acid oligoesters**)
 IT **Fatty acids**, esters
 RL: RCT (Reactant)
 (esters, **transesterification** of, with polyols, spray drying of reactants in)
 IT Drying
 (spray, of polyols, **fatty acid esters**, and catalysts, for **transesterification**)
 IT 57-50-1, Sucrose, reactions
 RL: RCT (Reactant)
 (**transesterification** of, with **fatty acid** Me esters)

L46 ANSWER 29 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1987:574789 HCAPLUS

DN 107:174789

TI Low calorie fat materials that eliminate laxative side effects

IN Bernhardt, Christian Albert

PA Procter and Gamble Co., USA

SO Eur. Pat. Appl., 28 pp.

CODEN: EPXXDW

DT **Patent**

LA English

IC ICM A23D005-00

ICS A23L001-30; A61K031-23

CC 17-9 (Food and Feed Chemistry)

Section cross-reference(s): 18

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 236288	A2	19870909	EP 1987-870021	19870219
	EP 236288	A3	19880406		
	EP 236288	B1	19931215		
	R: BE, CH, DE, FR, GB, GR, IT, LI, LU, NL, SE				
	JP 63230798	A2	19880927	JP 1987-56407	19870311
	JP 2703225	B2	19980126		
PRAI	US 1986-831737	A	19860220		

AB An edible, wholly or partially nondigestible fat compn. useful as a substitute for triglyceride fats in low-calorie foods is described. A blend of fully hydrogenated soy oil and partially hydrogenated soy oil (45:55) was partially saponified with KOH. Mono-, di-, and trisucrose esters were prepared by adding granular sucrose to the resulting soap/ester mixt. (final ratio of 1:5) and heating in the presence of K₂CO₃. After extn., drying, and deodorization, the sucrose ester compn. had a viscosity of 8.5 P at a shear rate of 800/s, a yield point of 35,316 dynes/cm², a thixotropic area of 1.217 .times. 106 dynes/cm²-s, and a liq.-solid stability of 100%. This compn. was also very effective at eliminating the laxative side effect (0% oil loss).

ST triglyceride fat substitute food; low calorie food sucrose ester; laxative side effect food triglyceride

IT Fats, biological studies

RL: BIOL (Biological study)

(substitutes for, low-calorie food contg.)

IT **Fatty acids**, esters

RL: BIOL (Biological study)

(esters, with polyols, as fat substitute, in low-calorie food)

IT **Soybean oil**

RL: RCT (Reactant)

(hydrogenated, **transesterification** of, with sucrose, in

low-calorie fat substitute manuf.)

IT Food
(low-calorie, triglyceride fat substitutes for)

IT Carboxylic acids, esters
RL: BIOL (Biological study)
(poly-, esters, with fatty alcs., as triglyceride fat substitute, in low-calorie food)

IT Carbohydrates and Sugars, esters
RL: BIOL (Biological study)
(polyesters, with **fatty acids**, as triglyceride fat substitute, in low-calorie food)

IT Alcohols, esters
(sugar, esters, as triglyceride fat substitute, in low-calorie food)

IT 57-50-1D, **fatty acid** polyesters
RL: BIOL (Biological study)
(as triglyceride fat substitute, in low-calorie food)

IT 57-88-5, biological studies
RL: BIOL (Biological study)
(disease, **hypercholesterolemia**, treatment of, with low-calorie triglyceride substitute-contg. food)

IT 57-88-5, **Cholesterol**, biological studies
RL: BIOL (Biological study)
(serum levels decrease of, in animals fed low-calorie triglyceride substitute-contg. food)

IT 57-50-1, biological studies
RL: RCT (Reactant)
(**transesterification** of, with hydrogenated soy oil, in low-calorie fat substitute manuf.)

L46 ANSWER 30 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1986:515279 HCAPLUS

DN 105:115279

TI **Sterols**

IN Shima, Koji; Niwa, Hirotoshi

PA Daicel Chemical Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT **Patent**

LA Japanese

IC ICM C07J075-00

ICA C07J009-00

CC 32-1 (**Steroids**)

Section cross-reference(s): 16

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61050996	A2	19860313	JP 1984-170810	19840816
AB	Sterols were prepd. by neutralization of deodorized distillates of fats and oils followed by transesterification by alcs. Thus, 75 g soybean oil deodorized distillate (acid value 57, sapon. value 114) was neutralized by 9.5 g 48% aq. NaOH, then stirred with 100 mL MeOH at 60-70.degree. for 3 h to give 16.1 g sterol of 54.6% purity.				
ST	sterol ; fat oil deodorized distillate neutralization; transesterification neutralized oil fat distillate				
IT	Soybean oil RL: RCT (Reactant) (deodorized distillate from, neutralization and transesterification of, steroids by)				
IT	Neutralization (of deodorized distillates of oils and fats, sterols by)				

IT **Transesterification**
 (of neutralized deodorized **distillates** of oils and fats,
sterols by)

IT **Steroids, preparation**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (**hydroxy**)

IT **67-56-1, reactions**
 RL: RCT (Reactant)
 (**transesterification** of, with neutralized deodorized
distillate of oils and fats)

IT **67-56-1, reactions**
 RL: RCT (Reactant)
 (**transesterification** of, with neutralized deodorized
distillate of oils and fats)

RN 67-56-1 HCAPLUS

CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

L46 ANSWER 31 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1974:414956 HCAPLUS

DN 81:14956

TI **Sterol** isolation from the **distillate** of
 oil-deodorizing process

IN Usui, Yutaka; Kuwayama, Hideo; Uchida, Minoru

PA Nisshin Oil Mills, Ltd.

SO Japan. Kokai, 2 pp.

CODEN: JKXXAF

DT **Patent**

LA Japanese

NCL 16D619

CC 45-2 (Fats and Waxes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 49005959	A2	19740119	JP 1972-45383	19720510
	JP 52008309	B4	19770308		

AB **Sterols** were deposited by esterification and
transesterification of oil deodorizer
distillates with alc. Thus, 150 g **distillate** of
 deodorized **soybean oil** was refluxed in CH₃OH [
67-56-1] with little H₂SO₄, washed, and heated with 200 ml CH₃OH
 contg. 3 g NaOH for 3 hr to give 18.2 g **sterol** with 82% purity.

ST **sterol** manuf; **soybean oil** deodorizer
distillate; oil deodorizer **distillate**
 esterification

IT **Steroids, preparation**
 RL: PREP (Preparation)

(by esterification of oil deodorizer **distillates**)

IT **Soybean oil**

RL: USES (Uses)

(**distillates** of deodorizing, steroid isolation from)

IT **67-56-1, reactions**

RL: RCT (Reactant)

(**transesterification** with, of **soybean oil**
 deodorizer **distillates**, **sterols** manufd. in relation
 to)

IT **67-56-1, reactions**

RL: RCT (Reactant)

(**transesterification** with, of **soybean oil**

deodorizer **distillates**, **sterols** manufd. in relation
to)

RN 67-56-1 HCAPLUS

CN Methanol (8CI, 9CI) (CA INDEX NAME)

H₃C-OH

L46 ANSWER 32 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN 1969:403585 HCAPLUS

DN 71:3585

TI **Sitosterol fatty acid ester**

IN Tsuchiya, Tomotaro

SO Jpn. Tokkyo Koho, 2 pp.

CODEN: JAXXAD

DT **Patent**

LA Japanese

NCL 16D619

CC 32 (**Steroids**)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 44004974	B4	19690228	JP	19650801
AB	The title esters, prepd. by esterification or transesterification of .beta.- sitosterol (I) and C18-20 unsatd. fatty acids , are good solvents for cholesterol and oryzanol. Thus, safflower oil was sapond. to give somewhat impure I, m. 132-3.degree., and a mixed fatty acid . The acid (4 g.) was heated with 2 g. I and 0.01 g. SnCl ₂ at 240-50.degree. for 2 hrs. under N and washed with aq. NaOH to give a red-orange oily ester; 10% cholesterol in the ester gave no ppt. over 2 weeks at 25-7.degree.. A 5% oryzanol soln. was obtained with soybean oil contg. 5% ester.				
ST	sitosterol fatty acid esters ; safflower oil fatty acids ; cholesterol solvents; oryzanol solvents				
IT	83-46-5P RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				